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ABSTRACT

The monograph contains 15 papers (many given at a 1977 Arizona State University conference) on children with severe behavior problems. Among the topics addressed are implementation of P.L. 94-142, the Education for All Handicapped Children Act; identification of early infantile autism; the effectiveness of behavioral strategies in teaching parenting skills; the use of self recording to increase arithmetic performance; punishment; contingent imitation; precision planning techniques; competency based teacher education; and evaluation of behavioral disorders. (CL)

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MONOGRAPH in Behavioral Disorders

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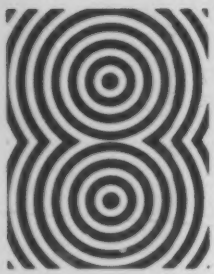

Severe Behavior Disorders of Children and Youth

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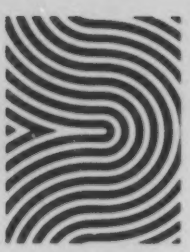


Contents

Preface v

The Challenge: Implementing Public Law 94-142 in the Community 1
Joyce Spence

Niche Breadth and the Instigation to Aggression 9
Stanley H. Zucker

The Identification of Early Infantile Autism 18
James E. Gilliam

Adolescents and Self-Regulatory Behavior 24
Kathleen McCoy and Karna Nelson

The Effectiveness of Behavioral Strategies in Teaching Parents the Art of Parenting 29
Albert H. Fink, Donzil Edge and Ronda Talley

The Discrimination Learning Processes of Behaviorally Disordered Children 39
Sandra W. Gautt

The Use of Self-Recording To Increase the Arithmetic Performance of Severely Behaviorally Disordered Students 50
Herbert J. Rieth, Lewis Polsgrove, James McLeskey, Katherine Payne and Ruth Anderson

Modeling Effects With Severely Behaviorally Disordered Children 59
Alfonso G. Prieto, Stanley H. Zucker, Larry F. Snead and Cynthia Cochran

Programs for Behaviorally Disordered Children at Neuropsychiatric Institute 64
Steven R. Forness

The Role of Punishment With Behaviorally Disordered Children 69
Robert B. Rutherford, Jr., and Richard S. Neel

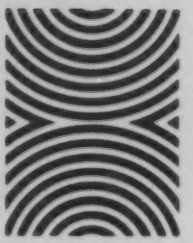
Contingent Imitation as a Teaching and Management Strategy for Children With Severe Behavior Disorders 77
James M. Kauffman

The Resource Room: A Model for Increasing Its Effectiveness 85
Jane E. McGlothlin and Mary K. Warner

Use of Precision Planning Techniques by Teacher Trainees With Behaviorally Disordered Pupils 93
Mary M. Kerr and Phillip S. Strain

The Validation of Competencies in Special Education: A Competency Based Teacher Training Program 107
Clint Van Nagel, Robert M. Siudzinski, Thomas S. Serwatka, Mary E. D'Zamko, Carol M. Downey and V. Lynn Reiser

Evaluation of Behavior Disorders 116
Ken Howell



Preface

A majority of the papers contained within this monograph were presented at the Teacher Educators for Children with Behavior Disorders/Arizona State University Conference on Severe Behavior Disorders of Children and Youth, held on the Arizona State University campus at Tempe, November 17, 18 and 19, 1977.

The editors feel that the quality of these papers represents a significant contribution to the area of severe behavior disorders, and are hopeful that this endeavor will result in an ongoing effort to address the problems faced by this often neglected population.

The editors would like to thank the Bureau of Educational Research and the Department of Special Education at Arizona State University for their cooperation and support for both the conference and this monograph. In addition, we would like to thank Dr. Merwin Deever, Dean of the College of Education at ASU, for making this all possible.

We would further like to acknowledge the Council for Children with Behavior Disorders for their endorsement of the conference and Dr. Albert Fink and Ms. Ann Geise Angermeier for their efforts in bringing this monograph to fruition.

Robert B. Rutherford, Jr., Ph.D.
Alfonso G. Prieto, Ph.D.

THE CHALLENGE: IMPLEMENTING PUBLIC LAW 94-142 IN THE COMMUNITY

Joyce Spence

One often finds in day-to-day work a compelling reactive force that sometimes feels like that thrilling but terrifying ride at the carnival which leaves one to the total capriciousness of centrifugal force. The daily preoccupation becomes so intense and focused on practices, procedures and implementation that one fails to contemplate the fundamental values orientation and broad social perspectives that must guide work in this field. Therefore, the focus of this paper is a broad set of concerns as they impinge on the target clients—seriously emotionally disturbed children—and how these concerns can serve as a stimulus for the reader.

An overall outline of those concerns will set the parameters for further discussion:

- First, the present is a time of wrenching values.
- Second, in spite of the child-centered rhetoric characteristic of this culture, children are among the most disenfranchised of citizens.
- Third, "our" children—the seriously emotionally disturbed—are to a very large degree defined by being victims of social change and political neglect.
- Fourth, the new Public Law 94-142 is, in and of itself, nothing more than another set of rules and regulations and could suffer the same dubious success as the War on Poverty.
- Finally, that "our" children simply cannot be served without tangible, continuing cooperation, co-working, coordination, and hand-in-hand doing with mental health, welfare, public health, protective services and parents.

At the risk of confirming Mr. Disraeli's well-known statement that "there are three kinds of lies: lies, damned lies and statistics", the review of some statistics seems pertinent. Admittedly, statistics can be dangerous. However, there are times when statistics are required to make people stop and observe what is happening. Within the broad outline already listed, the following trends stand out:

First, in a time of wrenching values:

- Although marriage still retains its status, couples are marrying much later and consciously having fewer children; (American Family, U.S. News and World Report, 1975).
- Divorce rates have doubled since 1966 and are expected to double again by the year 2,000. National estimates range from one out of two, to two

out of three marriages end in divorce; in Eugene, Oregon, a recent newspaper article quoted a local professional as saying it was almost one for one there (York, 1977).

- More than 40 percent of all children in America live with a single parent or parents divorced at least once; one sixth of all children live with only one parent (Bronfenbrenner, 1975).

- The average family moves about once every five years (American Family, U.S. News and World Report, 1975, pp. 30–31).

- Over one half of the mothers of school-age children are in the work force, but licensed day care facilities are available for fewer than one out of six of those children (American Family, U.S. News and World Report, 1977).

- Church attendance generally has fallen by one third in the past 10 years, with some religious denominations showing as much as a 50 percent drop.

To sum up the impact of these facts, Urie Bronfenbrenner was quoted in March, 1975:

> Specifically, in terms of such characteristics as the proportions of working mothers, number of adults in the home, single-parent families, or children born out of wedlock, the middle class family of today increasingly resembles the low-income family of the early 1960's (Becker, 1977, p. 3).

Second, our youth are among our most disenfranchised:

- The United States is 17th among nations in combatting infant mortality statistics (Bronfenbrenner, 1976).

- Children are most likely of all age groups in America to live in abject poverty. In 1974, 10.2 million children under 18 years (or 15 percent of all children in the U.S.) lived in families below the poverty level: 3.25 million of these children were under the age of six (Lund, 1976).

- The national incidence of reported parental maltreatment of children (60,000 cases annually) causes more deaths annually than any single childhood disease (Lund, 1976).

- In Oregon in 1976, almost one third of all births were to women in high risk catagories: mothers under age 15, between 15–16, over 35 years, and those bearing their fourth or more child in sequence (Governor's Task Force, 1976).

- Only about one fourth of all premature births occur in hospitals equipped for that condition, even though it is a recognized high risk condition for the infant (Governor's Task Force, 1976).

- The figures for reported runaways between the ages of 8 and 16 is estimated at more than one million (U.S. News and World Report, 1976).

- A study by the Committee on Public Affairs estimates that 72 percent of all "status offenders"—youths innocent of all adult-type crime—were reported to juvenile authorities by parents or other relatives (Beker, 1977).

- In Oregon last year, 3,400 (or 16 percent) of children were publicly recorded in out-of-home care, and of those 17 percent were under age six (Governor's Task Force, 1976).

A study by the National Council of Juvenile Court judges in 1976 found that only for one third of the children in foster care did placement involve a return to parents or relatives, and conversely about 21 percent of children turned over to the courts for placement had been abandoned by their parents. One out of every nine youths nationally ends up in juvenile court by age 18 (Jones, 1977).

The overall conclusion: tens of thousands of runaway, disobedient, pregnant and infant children are beaten, neglected, given poor health care, abandoned, or "warehoused" and simply forgotten each year in the United States.

Third, our children are defined as the victims of social change and political neglect:

- School vandalism is costing taxpayers $6 million a year (Jones, 1977).

- A Senate subcommittee reported 700,000 assaults each year against teachers, with the National Educational Association reporting a 58 percent increase between 1970 and 1974 (Jones, 1977).

- The same Senate subcommittee reported robberies in school up 117 percent and sex offenses up 62 percent, despite figures showing decreasing school enrollment (Jones, 1977).

- Suicide is the second leading cause of death for young Americans between the ages of 15 and 24 (homicide is first). The most recent U.S. study (1973) found 75 suicides among children 11 years and younger, compared to only 3 such deaths in 1958; between 1964 and 1974, the suicide rates for youths aged 5–14 doubled (Jones, 1977).

- Deaths from violence in some form—suicide, homicide, auto and other accidents—now account for two out of three deaths of those youths aged 5–18, according to Bronfenbrenner (1976).

- Even though the definition of "seriously emotionally disturbed" specifically excludes social maladjustment, two points seem appropriate. To quote from an article by Jean Nazarro in a recent issue of *Behavioral Disorders*:

> One fourth of institutionalized juvenile delinquents tested by general accounting office researchers in 1975 had learning disabilities . . . of the 129 juveniles tested in two states, GAO found only one child was functioning at grade level, 33 (27 percent) had learning disabilities, and the important point to this professional field, 66 (55 percent) had secondary learning problems (like poor attendance or family problems), and so on to include plain "slow learners" (Nazarro, 1977, p. 246).

Alan Abeson and Jeffrey Zettel, in their recent review of the new law in *Exceptional Children* noted:

> Special attention must be directed to insure that an unknown number of such children in special circumstances also receive the benefits of the Act; including abused and neglected children who, because of their mistreatment, become handicapped children possessing unique learning needs requiring special education; and a long neglected population of handicapped children that are in the nation's foster care and juvenile corrections programs (Abeson and Zettel, 1977, p. 127).

Those who bear the unfortunate label of seriously emotionally disturbed may have behaviors of an exotic nature and be called autistic or psychotic. More frequently, they will be children who are confused, rejected and in total despair. They will be children who have not had what Bronfenbrenner emphasizes as "someone to be crazy about that kid"; they will often lack the "enduring, irrational involvement of one adult" (Beker, 1977, p. 6). They may be victims of a modern childhood condition called depression. A recent U.S. News and World Report quotes Dr. Peter Saltzman, director of McClean Hospital Children's Center in Belmont, Mass., as saying

> Depression is an ailment psychiatry did not recognize in kids until about ten years ago. Now it's showing up as a symptom in suicides, poor school performance, hyperactivity, hypochondria, fighting, and delinquency (Jones, 1977, p. 19).

The fourth point emphasizes that Public Law 94-142 is nothing more than a set of rules and regulations and is subject to the same systematic willful noncompliance as other federal regulations adopted to ensure the well-being of citizens.

Those professionals committed to ensuring services for seriously emotionally disturbed children have their work cut out for them. Just as the full impact of the law will not be felt for some years to come, professionals in the field concurrently need to clarify and articulate a common understanding of several critical areas relating to this concern.

Following several points through the Abeson and Zettel (1977) article highlights only the most obvious problems to consider in policy setting and daily implementation. Initially, there is a critical belief: no child is uneducable—any child can learn. The concept of a continuous process of education is important as it translates to curriculum. Abeson's reference to mobility training for blind children pinpoints the need to define the handicap. That is, within the field of serious emotional disturbances, professionals will be severely testing the limits of curriculum and the commonly accepted role of education with the five broad areas of behavioral excess or deficit inherent in this "so called definition."

A very important point can be made about children with learning needs requiring program delivery in public or private day or residential settings that operate on a tuition basis. Throughout the United States, one of the most typical program options for the seriously emotionally disturbed child is the private or public out-of-school placement. States vary widely in their support of such facilities, as well as levels of state standards for care and education. There is also, unfortunately, no correlation between cost and adequacy. This leads to a personal belief that there will be improvement in programs within private and public day and residential settings as they are opened to greater scrutiny. Closer evaluation of the programatic areas as they overlap with mental health, welfare and the children's social services systems will also be required.

In the United States, the issue of evaluation and placement reaches an almost exquisite level of confusion and ignorance. Putting the enormous question of cultural bias aside leaves a pitiful dearth of test instruments: questionable forms yield often invalid and unreliable results in undefined or unproven areas of human functioning. Inevitably, evaluative judgments

are made on this collective educated opinion. Efforts, then, are to salve the professional conscience with data on the child's variance from whichever norm might be arbitrarily chosen, and whether or not the evaluator has known this family and if they are workable.

Providing the Individualized Education Program is in many ways the easiest part of the new law. Professionals in these fields are experienced in writing goals and objectives. But what about the concept of related services? Abeson and Zettel say the related services are "those additional services necessary in order for the child to benefit from special educational instruction." (1977, p. 124). Here, PL 94-142 includes psychological and counseling services as well as parent education. Some professionals, including this writer, believe that in order for the child to benefit from special instruction, a more systemized environment including family behavior changes is a prerequisite. The issue of school-parent mutuality is going to be extremely difficult for the treatment professionals, regular educational professionals and parents.

The principle of least restrictive environment is important in several ways. One obvious one is the question of readiness and adequacy of training through the range of regular class, regular counselor, on to special class. Another, of course, is professional operational policies for determining the appropriateness of the placement. A case in point is the quiet, well behaved young girl slowly starving to death from anorexia nervosa. A third major point is the social necessity for restrictiveness, the need for treatment professionals to help school people define a perimeter that insures the safety, protection and security of both the target child and others.

The provisions for due process have some qualities of the proverbial double-edged sword. Admittedly, school administrators and school boards have arbitrarily decided just who will and will not be allowed to participate for too long. A large number of the nation's unserved children—as presently defined—are approximately the concern of specialists in severe emotional handicaps, in the opinion of this writer. On the other hand, providing the judicial option at the outset could tend to establish adversary roles with few procedural safeguards, altogether bypassing the most effective bargaining level—that of people to people contact resulting in trust, concern and communication.

And overall, the greatest concern personally held by this writer is the nurturing of the compliance syndrome. The law exists and its intention is good and appropriate, the affected institutions and individuals must therefore learn to cope and comply. The law is significant and all must guard against allowing it to suffer the same unlamented burial in the graveyard of other once ambitious federal programs. The evolution and heredity of rules and regulations develops the further necessity of more rules to clarify the earlier rules. Additional persons are employed to see that these rules are enforced. Sanctions, interpretations and appeals arise to complicate the interpretation of each clause. The compliance syndrome results in massive efforts to meet the letter of the law, not the spirit. The tendency is to maximize one's self interest but to miss the point. An analogy in business is the armies of corporate lawyers aimed at finding tax loopholes

while the federal government arms its own army of lawyers with more rules and regulations to plug the holes, ad infinitum. Those charged with implementing the law are often excessively concerned about the details, but not the local conditions which will make or break its success. Those in special education fields must prepare to respond with well thought-out training and back-up resources to resistance from colleagues in regular education. A further hazard to guard against is the tendency to drown in a sea of paperwork and therefore, instead of individualizing instruction, make the process more burdensome than helpful. The related professional fields of behavioral disorders must get their act together and help other school people recognize these target children, reduce educators' fears and give them real skills in dealing with these handicapped children. If compliance becomes the sole objective, rather than the spirit of the right program at the right time, the effort is doomed to failure.

The last issue—dealing with cooperative efforts—is in some ways the most important of all. The target population of seriously emotionally handicapped does not present primarily an educational problem. It is simply impossible to separate education of the seriously emotionally and handicapped from mental health, welfare, the foster care system, children's social services and family problems. For many of these children with this group of handicaps, the schooling process is at best incidental. At worst, it is the very button that triggers their explosion.

We have a definition—if a "loose" use of that word is permitted—that absolutely requires input from psychological, medical and behavioral camps; it is entirely predicated on eliminating other causes to explain the presenting problem. The earlier statistics presented should, to some extent, give credence to this writer's belief that what is observed in the eyes of a child staggering under the professions' label is the emotions of an innocent victim in a strange battle of limited resources, social change, poverty, fear, ignorance, neglect, racism—all compounded, it seems, by cosmic capriciousness.

There is no unified national policy for dealing with children and families and their problems. At present, 106 federally sponsored health- and mental health-oriented programs for children operate out of Washington D.C. A recently published chart of educational programs conducted by the Department of Health, Education and Welfare Office of Education revealed 7 bureau levels overseeing 71 programs, 3 intermediaries with 9 types of recipients on the bottom line. The lines of combinations and permutations from one to the other blackened the page (Governor's Task Force, 1976).

In the state of Oregon, there is little coordination of plans except when mandated, with the not surprising result of multiple standards, requirements and reports. At the local level are found development disability councils, the mental health people, parent advocacy groups, comprehensive planning bodies, advisory bodies, central school offices, building principals, juvenile counselors, legal aid attorneys, children's services caseworkers, foster parents, natural parents and group homes.

For those who work with the target group, this results in a law that by its very definition does not include a large population of children heretofore thought within the professional concerns: the behaviorally disordered

or conduct problem child. This has resulted in a conflict-ridden, reactive body of professionals trying to define their clients. Now is the time to step beyond special education, social work and psychology, to the serious and potentially rewarding task of making this law and others like it work for all, no matter what it takes.

Stating problems is always easy; formulating efforts toward resolution is not. Very briefly and in a most seminal way, in the spirit of offering hope for positive change, this writer proposes the following principles:

Families: Every effort must be made to restore, support and maintain the family as a unit. This implies a reorientation away *from* the handicapped child *to* a focus on the child as part of an ongoing family system. To accomplish this effectively, it is necessary to guard against the subtle implications of titles, organizational systems and existing treatment services that conceptualize their purpose to be limited to the child and not the larger focus of family.

Community: The potential for prevention through building effective neighborhood and community networks is at once the most exciting and challenging of the presenting tasks. Each individual can take a responsible role in infusing life into local schools, neighborhood organizations and all the existing intricate tenacles of a community. Children and families are suffering from isolation and lack of social concern. Individuals and professions can and should be leaders in building community networks.

Advocacy: There is a responsibility of advocacy for both children and families. Assigning blame and identifying the victim will only reinforce an already dysfunctional CHILD CLIENT-FAMILY CLIENT Seesaw model. Regardless of the professional commitment to special education, law, mental health, housing, social services, or nutrition, individuals must retain a vision of their collective impact on the future.

Planning: Individuals working in the system can require of themselves that both short- and long-range planning for children and families includes the variety of institutions and agencies that will impact on those children and families. By refusing to maintain the present fragmented, splintered system, individuals can pledge the first small but significant efforts toward coordinated planning.

It is time to initiate change, to begin personal efforts to affect the system—disorganized as it is—and to abandon the unproductive "head shaking" characteristic of present criticism. Adoption of Public Law 94-142 has given everyone in the field a framework, even though flawed; it is time to begin building.

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NICHE BREADTH AND THE INSTIGATION TO AGGRESSION

Stanley H. Zucker

The present paper is an attempt to review a body of literature in order to explicate the relationship between niche breadth and the instigation to aggression in some exceptional population. What follows, therefore, is a theoretical review of a number of psychological theories conceptually related to niche breadth and the instigation to aggression, and some implications for exceptional populations.

> Niche breadth refers to the range of roles which the organism is able to carry out; in human ecology it will refer also to the restraints which society places on individuals in certain niches such that these individuals may or may not shift to certain divergent niches (Feagans, 1972).

Territoriality (Ardrey, 1961; 1966; 1970) is one example of how niche breadth can be affected. Territorial markings by animals are attempts to increase their niche while at the same time limiting the niche of another animal. This drive may override the sexual drive in some species. In the Uganda kob "males compete for real estate, never for females" (Adrey, 1966). The applicability of this concept to humans has been questioned by some (Barnett, 1968) while others have advanced human descriptors such as "personal space" or "the body buffer zone" (Hall, 1959; 1966) and shown the implications of these concepts for everyday living (Sommer, 1969). While there may be difficulty in applying ethological concepts to humans, it certainly is clear that the concept of niche breadth may have more pervasive an influence in humans than in other species. The complex arrangement of roles in which humans transverse would seem to lend itself to more variations in niche breadth than in simplistic infrahuman societies.

Lorenz (1966) describes aggression as "the fighting instinct in beast and man that is directed against members of the same species." Aggression only becomes undesirable when the species (like man) fail to develop the usual instinctual inhibitions related to aggression. Most animals that have the ability to kill another of their species develop instinctual inhibitions against the very act of doing so. Intraspecies fights do not end in death, but in acts of appeasement by the loser. If man had no weapons at his disposal, he would not normally be equipped to kill another of his species. Lacking such innate abilities, the human species has established no inhibitions. To Lorenz, all man's

> trouble arises from his being a basically harmless, omnivorous creature, lacking in natural weapons with which to kill his prey, and, therefore also devoid of the built-in safety devices which prevent 'professional' carnivores from abusing their killing power to destroy fellow members of their own species (1966, p. 241).

Implicit in the application of the above definition of niche breadth to humans is the thwarting of behavior. There exists a voluminous body of literature attempting to demonstrate that a thwarting can instigate aggression. This relationship has been well documented but a convincing explanation as to why this relationship should exist has not been offered. There is still a great deal of question as to exactly what aspect of a thwarting is the instigator to aggression. The present paper represents an attempt to examine the relationship between three components of thwarting (simple frustration, violation of expectancy, and elimination of freedom) and the instigation to aggression.

SIMPLE FRUSTRATION

Dollard, Doob, Miller, Mowrer and Sears (1939) presented one of the first comprehensive theories about the relationship between thwartings and aggression. Their basic postulate was that "aggression is always a consequence of frustration." Frustration was defined as an "interference with the occurrence of an instigated goal-response at its proper time in the behavior sequence." In order for frustration to exist, two further conditions must be specified: (1) the organism could have been expected to perform the designated act, and (2) these acts have been prevented from occurring. Finally, aggression was defined as "an act whose goal-response is injury to an organism." In other words, all that is necessary to instigate an individual to aggress is to block him from obtaining a goal he would like to have and is in the process of obtaining.

A number of early investigations supposedly demonstrated that aggression is the result of blocking the subject from obtaining a desired goal: Miller and Bugelski (1948) reported that when their subjects were not allowed to go to the theater on bank night they reacted aggressively by displacing their hostility onto minority groups. Haslerud (1938) reported that when hungry chimpanzees were blocked from obtaining food by a barricade they became violent and assaulted the barrier between them and the desired goal. Barker, Dembo & Lewin (1941; in Lawson, 1965) demonstrated that children became slightly more aggressive when they were not allowed to play with certain attractive toys.

Thus, the frustration and aggression theory (Dollard et al., 1939) and some of the early investigations offered the hypothesis that not allowing an individual to have something he wants and is trying to get is a sufficient condition to instigate him to aggress. The two important ingredients of a thwarting that incite aggression are the wish to have a goal and the denial of the attainment of that goal.

VIOLATION OF EXPECTANCY

Soon after the introduction of the frustration-aggression theory, a number of researchers began to take exception with the basic premise of the theory; i.e. people aggress when a goal they want is refused them. These dissenters argued that it is not merely the denial of a wanted target that instigates aggression, but it is the denial of a goal whose attainment is both wanted and
10 expected that motivates individuals to aggress. These authors believed that

the aggression-instigating ingredient in a frustration situation is the blocking of an expected outcome.

Bateson (1941) pointed out that "we never at any time saw a Balinese annoyed because he was interrupted in the course of some series of acts." He attributed this to the fact that the Balinese child is "not driven to expect or look for climax in his acts." The point Bateson was trying to make was that aggression is not merely the result of frustration, but of a frustration of an expected outcome.

Zander (1944) echoed this belief by stating "that a situation cannot be frustrating unless it is within the field of aspiration of the individual." "Field of aspiration" was defined to include the expectations of the individual. He concludes by stating: "Frustration is that condition which exists when a response toward a goal believed important and attainable by a given person suffers interference. . ."

Pastore (1950, 1952) also took the position that only frustrations that violated expectancies would lead to aggression. He (1950) subjected a group of six college students to a number of ordeals such as going without sleep, forced silence and denial of food for a prolonged period. Subjects had signed up for the experiment believing the experimenter would provide them with food and games. During the study, the experimenter renumerated these promises, but the experimenter who promised food failed to return after "going for the food" and the one who promised games announced that he had forgotten the games. The subjects became hostile toward the experimenters. Pastore believed that this hostility was the result of the experimenters' violating the subjects' expectancies. Pastore (1952) attempted to demonstrate his hypothesis that only frustrations that violated expectancies and were seen as arbitrary in nature would instigate individuals to aggress, while nonarbitrary thwartings would not. He gave subjects descriptions of 10 frustration situations, some of which were arbitrary ("you're waiting on the corner for a bus, and the driver intentionally passes you by"), and some nonarbitrary ("you're waiting on the corner for a bus. You notice that it is on its way to the garage.") Subjects were asked to indicate how they would respond to these situations. The results suggested that people will react violently to violations of expectancies or arbitrary thwartings but that they will not act so aggressively to nonarbitrary thwartings.

Exactly why a violation of expectancy should lead to more aggression than a simple denial was not explained until Berkowitz (1962) published his comprehensive book on aggression. Berkowitz stated that violation of expectancy should lead to a greater experiencing of thwarting and offered two reasons why this should be true. First, a person who expects to obtain a goal will often make anticipatory responses in preparing to experience the attainment of that goal. Thus, the thwarting of the expected attainment of a goal is likely to frustrate more response sequences than the denial of a nonexpected goal. The second reason offered by Berkowitz as to why an unexpected thwarting should be felt as more severe than an expected one was that of assimilation and contrast (Sherif & Hovland, 1961). An individual expecting a thwarting might assimilate the actual frustration to that expected

and result in the actual thwarting being felt as less severe than it actually was. Someone not expecting the thwarting would contrast the actual frustration with his high expectancy and that frustration could be perceived as more severe than it actually was.

Thus, some investigators (Berkowitz, 1962) believe that violation of expectancy differs from pure denial only in the strength of frustration that is experienced, while others (Pastore, 1950, 1952) believe that denial and violation of expectancy represent qualitatively different types of frustration. Nevertheless, violation of expectancy and simple denial of a goal are two features of thwarting, both of which have been dubbed necessary ingredients for the instigation to aggression. No careful investigation has conclusively determined which, if either, is actually required if a thwarting situation is to instigate an individual to aggression.

REACTANCE THEORY

There is another aspect of many thwarting situations that has recently been addressed. In addition to denial and violation of expectancies, the blocking of the attainment of a goal may eliminate an individual's freedom to have that goal. Brehm (1966) postulated that, for any given person, there exists a number of behaviors in which that person feels he could engage either at the moment or at some time in the future. This set of behaviors was labeled as the individual's "free behaviors." It is not difficult to see that a blocking of a response sequence or a thwarting that violates an expectancy could also serve as a threat to or elimination of the freedom to behave in certain ways.

How would the thwarted individual act or react to the threat to or elimination of a free behavior? Brehm (1966) stated that a threat to or elimination of freedom will motivationally arouse the individual and that this arousal will instigate the individual to restore his freedom and to insure against any further loss of it. This arousal state was named "psychological reactance" and its magnitude was said to be a direct function of the importance to the individual of the threatened behavior, the proportion of free behaviors threatened or eliminated, and the strength of the threat.

Three reactions have been demonstrated to occur following reactance initiated by eliminating or threatening an individual's freedom to have one of several alternatives. First, the threatened or eliminated behavior or goal increases in attractiveness. Brehm, Stires, Sensenig and Shaban (1966) showed that when a subject believed he was free to choose any one of four records and the freedom to choose the third most attractive alternative was eliminated by telling him it was not available, the attractiveness of the record increased. Hammock and Brehm (1966) demonstrated that following the elimination of or threat to the freedom to choose an alternative, that alternative will increase in attractiveness. Other studies have reported similar findings (Wicklund, 1970; Linder & Crane, 1970; Linder, Wortman, & Brehm, 1971; Brehm & Rozen, 1971) including one with severely retarded children (Altman & Zucker, 1975). This increase in attractiveness is supposedly due to the increased drive to regain the threatened or eliminated behavior.

12

Secondly, when a free behavior has been threatened (not eliminated), the individual will often attempt to exercise that freedom by carrying out the behavior in question. A number of investigators (Wicklund & Brehm, 1968; Worchel & Brehm, 1971; Brehm & Sensenig, 1966; Worchel & Arnold, 1973; Worchel & Brehm, 1970; Jones & Brehm, 1970) have obtained results indicating that when a subject's freedom to choose one of two alternatives was threatened by another person's demanding that he take the other alternative, the subject reacted by choosing opposite to the demand. This presumably reflected the subject's attempt to demonstrate that he did have the freedom to choose the threatened alternative.

Finally, a threat to or elimination of freedom may instigate the individual to react hostilely toward the thwarting agent. By injuring the threatening agent, the individual may succeed in restoring his freedom in the future. Worchel and Brehm (1971) reported that subjects evaluated a person who had threatened their freedom of choice more negatively than a person who had not threatened their freedom. Similar findings were reported by Brehm and Cole (1966) and Worchel and Brehm (1970).

SYNTHESIS

There are, therefore, three "theories" that offer the prediction that aggression may follow thwarting. There are a number of similarities in the three. All predict that the strength of the instigation to aggression will vary directly with (1) the importance of the thwarted behavior, (2) the number (or proportion) of freedoms or behavioral responses threatened, and (3) the strength of the threat or degree of interference with the behaviors in question. All three predict that the strongest motivation will be to attack the thwarter rather than some other target.

Because the predictions of the three theories are so similar and because the difference in what each views as the necessary ingredient for thwarting to incite aggression are difficult to pinpoint, the previous experiments in the area of frustration and aggression have generally failed to take these differences into account.

According to Cofer and Appley (1964) and Cofer (1972), there are two necessary conditions for the existence of simple frustration. They are (1) the presence of a previously aroused and unrequited drive or motive and (2) some form of interference with or thwarting of its means for gratification. The individual must be motivated to perform a specific response and the thwarting must occur while he is still motivated to do so.

The conditions necessary for violation of expectancy are the same as that for simple frustration with the additional requirement that the individual must expect to obtain the goal of his drive. For both simple frustration and violation of expectancy, then, the failure to obtain a goal serves as the trigger for aggression.

The situation for the arousal of reactance is different. The necessary conditions for the arousal of reactance are (1) that the individual feel that he has the freedom to perform a certain behavior and (2) that the freedom to perform that behavior is being threatened or eliminated. This threat may come

in a variety of ways, one of which may be the actual blocking of the performance of that behavior.

Two important differences in the conditions necessary for the arousal of frustration and reactance can be found. First, in order for frustration (either denial or violation of expectancy) to occur, the organism must be motivated to perform the specific behavior at the time of the thwarting. No such motivation is required for the arousal of reactance, though the motivation to perform the behavior is in no way excluded by reactance theory.

Besides the difference in requirements of motivation, the reactance and frustration theories differ in predicting the aspect of thwarting that initiates the hostile drive. It is the blocking of the completion of an instigated response or of the attainment of a desired reward that is seen as the necessary ingredient for the arousal of frustration, while it is the threat to the freedom to perform an act that arouses reactance. In other words, reactance can be reduced by restoring the freedom of the individual to perform an act even if he does not carry out the act at the time of the restoration of freedom. To reduce frustration, the individual must complete the instigated response once the barrier has been removed.

Therefore, there are some important differences between frustration and reactance with regard to prior motivation, importance of the act itself versus the importance of the freedom to perform the act, and the effect of prior expectancy of freedom. There are possible situations in which frustration and reactance can occur simultaneously, situations where frustration can occur without reactance, and situations in which reactance can occur without frustration.

IMPLICATIONS

There are a number of implications that can be drawn at this point. Niche breadth is an important topic when dealing with exceptional populations, especially when its effects are so pervasive and misunderstood. A number of authors in special education (Quay, Morse, & Cutler, 1971; Telford & Sawrey, 1972; Smith, 1968; Robinson & Robinson, 1965; Smith, 1969) from various areas of exceptionality have discussed aggression and frustration in most instances as related concepts. From the earlier discussions we can conclude that frustration may or may not instigate aggressive behavior and aggression can occur without frustration as in the case of reactance. Niche breadth encompassing all three theories would be more related to aggression than any of the theories individually. Simple frustration, violation of expectancy, and psychological reactance are all limitations on a person's roles. In turn, these limitations, regardless of the form they take, may incite aggression.

Fallacy may exist then, in the common plea of the special educator (Kirk, 1972) that children should not be subjected to failure in order to reduce frustration that in turn should reduce aggression. The rationale here is to eliminate the cause of aggression, but the fallacy lies in the assumption that the failure-induced frustration is the causal factor, or if it is, that it is the only causal factor. In the case of the child who is in school, failing at a task may be only one aspect of his niche breadth while a much more important
14 factor may be that he is labeled. Farber (1968) points out that children la-

beled retarded in the regular class are usually rejected by the other children. They are described as "dirty, loud, belligerent, aggressive, and 'behavior problems'." Of course the nature of the relationship is nebulous. Is it these behaviors that affect niche breadth or does the labeling affect niche breadth that in turn results in these behaviors? According to the theories under review, the latter explanation seems more fruitful.

Sometimes it is all too easy to make recommendations that cannot be implemented in the real world. Or worse, recommendations that are feasible but are faulty for specific purposes. Elimination of labels *per se* will not eradicate the debilitative effects on niche breadth without a concommitant relaxation of additional restraints. The socially imposed restriction of a handicap still exists even if the name of the handicap is changed, or even if no label is assigned to the handicap.

Once society ceases to stigmatize disabilities as handicaps, perhaps there will be a general ameliorative effect on niche breadth such that applications of the three theories may prove useful to predict and control unwanted behavior in exceptional populations. At the present time it seems highly unlikely that we can outweigh the obvious reactance effects of labeling (either overt or covert) on niche breadth, and in turn, on antisocial behavior.

Another interesting implication may relate to teacher behavior as a result of thwarting or reactance. The exceptional child may be a thwarting event for teachers, in that he prevents them from achieving a wanted and expected goal. The teacher teaches but the child does not learn. Besides the obvious thwarting effect here, this could also imply some loss of free behavior, i.e. teaching behavior, on the part of the teacher that could involve psychological reactance (Harth, 1974).

If the child continues to limit the niche breadth of the teacher, this could lead to referral to a special class, punishment, behavioral sanctions, etc. In some situations these teacher behaviors could be classified as aggression.

Therefore, the effect of niche breadth on aggression may relate to both student behaviors and teacher behaviors. As we are engaged in identifying antecedent conditions in our classrooms to establish behavioral contingencies, we must be aware of the general effect of niche breadth on student and teacher.

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IDENTIFICATION OF EARLY INFANTILE AUTISM

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The syndrome of early infantile autism is a relatively rare but devastating behavioral disorder that transcends culture, races and socioeconomic classes. Confusion and disagreement exist between clinicians, researchers and others regarding the definition, etiology and treatment of this disorder. Problems resulting from the dissension affect the diagnosis and treatment of these handicapped children. This paper examines the essential characteristics of autism, describes three instruments for screening, and discusses some cautions concerning the diagnostic process.

The definition of autism has changed over the years from 1912 when Bleuler, a Swiss psychiatrist, first used the term to describe a form of thinking in the schizophrenic patient. Kanner (1943) enlarged the definition when he described a group of severely disturbed children seen at the Johns Hopkins University clinic. These children shared certain clinical features characterized by failure to make affective contact with persons in their environment. This disorder manifests itself in the first 36 months of life; Kanner thus described the condition as early infantile autism.

Controversy over the nature of the illness resulted in some clinicians and researchers describing autism as a form of other mental disorders (Bender, 1947; Mahler, 1952). A few professionals viewed autism as a form of mental retardation while others saw it as an emotional disorder. Others agreed that early infantile autism was a distinct pathological syndrome, but differed in their views concerning etiology (Rutter, 1965; Rimland, 1964). Different treatments emanated from various philosophical and theoretical positions but to date no empirical evidence has confirmed a common etiology or altered the course of the disorder.

Because of autism's relative rarity and the nature of its symptomatology, it is often confused with other disorders such as schizophrenia, deafness, visual impairment or mental retardation. To provide clarification in the differential diagnosis, The National Association for Autistic Children (NSAC) has adopted an official seven-page definition of the syndrome of autism. The following is a shortened version of the NSAC definition:

> Autism is a severely incapacitating life-long developmental disability which appears during the first three years of life. It occurs in approximately five out of every 10,000 births and is four times more common in boys than girls. It has been found throughout the world in families of all racial, ethnic and social backgrounds. No known factors in the psychological environment of a child have been shown to cause Autism (Interagency Task Force on Autism, 1977).
>
> The essential features of the syndrome of autism include disturbances of developmental rates and/or sequences, disturbances of responses to sensory stimuli, disturbances of speech, language-cognition, and non-

> verbal communication, and disturbances of the capacity to appropriately relate to people, events and objects, manifested by failure to develop appropriate responsivity to people and assignment of appropriate symbolic meaning to objects (NSAC, 1977).

The NSAC definition of autism was purposefully made flexible to include most of the clinical symptoms without establishing relative importance to any one of the symptoms. The clinical features of autism are many and varied and often overlap those found in other disorders.

Kanner's early description of the syndrome of autism still accurately illustrates the features of the disorder. The essential common characteristics discussed by Kanner consist of

> a profound withdrawal from contact with people, an obsessive desire for the preservation of sameness, a skillful and even affectionate relation to objects, the retention of an intelligent and pensive physiognomy, and either mutism or the kind of language which does not seem intended to serve the purpose of interpersonal communication (Kanner, 1949).

According to Kanner, the outstanding pathognomonic characteristic is the child's inability to relate to people and situations normally. This is present from the beginning of life and results in the extreme aloofness that shuts out the external world.

Based upon Kanner's early work and the accumulation of clinical data, various clinicians and researchers have devised checklists and scales to classify autistic behaviors and to assign relative importance so that accurate diagnosis of the syndrome can be made. Three of these checklists are discussed in the following section of this paper.

THE RENDLE-SHORT CHECKLIST

Clancy, Dugdale and Rendle-Short (1969) refined a nine-point scale of the British Working Party study (Creak, 1961) and derived a 14-item behavioral checklist that successfully differentiated autistic children from normal and other abnormal groups. The behavioral symptoms found most often in early infantile autism in their study are given in Table 1, listed in order of decreasing frequency.

Using these items Clancy et al. were able to distinguish the autistic group from groups of normal, retarded, deaf and cerebral palsied children. Although normal and/or abnormal children may demonstrate some of these behaviors, at least 7 of the 14 items should be present and consistently observable for the diagnosis of autism to be made. According to the authors, these manifestations should be viewed as only presumptive evidence for the diagnosis of autism. Other evidence deemed necessary for the diagnosis includes a clinical history and examination, assessment of family dynamics and interaction, psychological assessment, electroencephalogram and urine examination for amino acids.

THE DIAGNOSTIC CHECKLIST FOR BEHAVIOR-DISTURBED CHILDREN (FORM E-2)

Rimland included a diagnostic questionnaire titled Form E-1 in his book *Infantile Autism* (1964). This form, to be completed by parents, was revised in 1965 and titled The Diagnostic Checklist for Behavior-Disturbed Chil-

TABLE 1
Behavioral Symptoms Found Most Often in Early Infantile Autism
(Clancy et al., 1969)

1. Great difficulty in mixing and playing with other children.
2. Acts as deaf. No reaction to speech or noise.
3. Strong resistance to any learning, either new behavior or new skills.
4. Lack of fear about realistic dangers—e.g., may play with fire, climb dangerous heights, run into busy roads or into the sea.
5. Resists change in routine. Change in the smallest thing may result in acute, excessive or seemingly illogical anxiety—e.g., child rejects new or all but a few foods.
6. Prefers to indicate needs by gestures. Speech may or may not be present.
7. Laugh and giggling for no apparent reason.
8. Not cuddly as a baby. Either holds himself still or clings limply.
9. Marked physical overactivity. Child may wake and play for hours in the night and yet be full of energy the next day.
10. No eye contact. Persistent tendency to look past or turn away from people especially when spoken to.
11. Unusual attachment to a particular object or objects. Easily preoccupied with details or special features of this object, and has no regard for its real use.
12. Spins objects, especially round ones. Can become totally absorbed in this activity and distressed if interrupted.
13. Repetitive and sustained odd play—e.g., flicking pieces of string, rattling stones in a tin, or tearing paper.
14. Standoffish manner. Communicates very little with other people. Treats them as objects rather than people.

dren, Form E-2. This questionnaire consists of 80 questions and gathers information about the child's social interaction and affect; speech, motor and manipulative ability; intelligence and reaction to sensory stimuli; family characteristics; illness development; physiological; and other biological data. The information gained from this questionnaire provides much information about the child's development from birth through age five and seeks information about the behavioral characteristics seen in the syndrome of autism. While the form is rather lengthy, it is easy to read and interpret and allowance is made for parents to qualify their responses if they desire. The completed questionnaire is mailed to the Institute for Child Behavior Research in San Diego, California, where it is analyzed and a diagnosis is made.

Form E-2 is computer analyzed. Items are scored plus (+) if the item is characteristic of early infantile autism and minus (−) if the item is not characteristic of autism. The final score is the difference between the autism scores and the non-autism scores. Scores of +20 or higher on Form E-2 are indicative of autism and scores of less than 20 are indicative of non-autistic disorders. It is interesting to note that Rimland's research
20 (1971) found 9.7 percent of a sample of 2,218 cases to have E-2 scores

of 20 or greater. That is, only approximately 10 percent of the children with severe behavior disorders assessed with Form E-2 were diagnosed as autistic. This correlates with Kanner's estimate that only about 10 percent of the children referred to him were truly autistic.

THE MUSKEGON INDEX OF AUTISTIC BEHAVIORS

One of the more recent checklists for screening of autism is the Muskegon Index of Autistic Behaviors (MIAB) devised by Holovka and Domsic (1976). The MIAB was developed for use by teachers, parents, other professionals and paraprofessionals who work with children with severe behavior disorders. Very little research with this instrument has been done but it appears to be a useful tool for screening purposes.

The MIAB has six categories of autistic behaviors: Extreme Aloneness; Non-Communicative Language; Perceptual Disturbances; Cognitive and Motor Distortions; Inappropriate Emotional Reactions; and Maladaptive Behaviors. Each category is comprised of 10 behavioral items for which a rating is assigned. Ratings of 0 are assigned for items that are rarely or never demonstrated; a 1 is given for behaviors sometimes demonstrated (i.e., seen two or three times a week); and 2 is scored if the behavior is seen very often (daily). Items are summed for each category and for the total index.

A total score of 60 or greater indicates a high frequency of autistic behaviors and a high likelihood of being so diagnosed, while a score of 50 to 60 indicates a moderate level of autistic behaviors and more information may be required. In addition to the total score, the MIAB renders category scores. The authors report that autistic children usually score 8 or 9 on all of at least 5 of the 6 behavioral categories.

As mentioned earlier the MIAB is new and has not withstood critical assessment by clinicians and researchers to document its effectiveness. However, it would appear to have several uses. The authors recommend it for use as a screening tool, prescriptive tool, growth chart, parent-professional comparison, prognostic tool, and for setting classroom norms. Unlike the Rendle-Short scale or Form E-2, it is more behaviorally specific. Its true value, however, in the assessment of autism remains to be determined.

SOME CAUTIONS

The need for accurate diagnosis of early infantile autism has been voiced by parents and professionals and the three instruments discussed in the preceding section appear to fulfill this need. However, one must be careful in the diagnostic process to insure that the correct diagnosis is reached. Certain cautions are advised.

In any assessment of behavior one must concern oneself with these two questions: What is the quantity of the behavior? What is the quality of the behavior? The first question asks how much behavior is shown, and how consistently it occurs. The second question requires one to evaluate the behavior in some qualitative term; e.g., good–bad, appropriate–inappropriate, negative–agreeable-adaptive–maladaptive. It is only after one

can answer these two questions that one can make qualitative judgments about behavior.

One must also be concerned for complicating variables. The nature of the child's physical health should be evaluated to rule out other medical conditions. In the same manner, psychological assessment might be helpful to rule out other emotional or cognitive disorders.

One must be concerned about the possibilities of Type I and Type II errors. The Type I error would be declaring the child to be autistic when he is not and the Type II error would be determining that the child is not autistic when he really is. Either error is potentially harmful to the child and it is for this reason that extra efforts must be made to insure as accurate diagnosis as possible. These types of errors compound themselves later in the child's life. Either the child is rejected for the treatment he needs (based upon the diagnosis) or he is treated for the wrong disorder. In either case correct treatment is delayed or not provided. Finally, incorrect diagnosis for which treatment is determined to be successful often leads researchers and clinicians into diagnostic labyrinths in their efforts to replicate or improve upon these treatments.

If a parent or teacher is concerned enough about the behavior of a child that the suspicion of autism arises, then detailed, consistent behavioral recordings should be made. Efforts should be made to get other opinions to validate the observations. After this is done it would be appropriate to use either or all of the screening instruments discussed in this paper to assess the child's behavior.

After the use of the screening instrument(s) the parent or professional needs to link up with the agency or person who can provide the services the child needs. It is at this point that parents feel most alone. They have a clear understanding of their problem but don't know where to go for help. The national, state and local chapters of The National Society for Autistic Citizens can be of great value to parents and others involved with an autistic child. They can help with referrals, identify resources to the family and provide support for the problems encountered. Strong, united efforts can also be directed at promoting needed changes in the services and/or service delivery systems for the autistic child.

SUMMARY

The diagnosis of autism is made difficult by the variety of clinical symptoms, the rarity of the condition, the disagreement concerning definition and etiology, and the overlap with other cognitive and behavioral disorders. The identifying characteristics include disturbances of developmental rate, disturbances of speech, cognition and communication, and disturbances in the ability to interact and relate appropriately with the environment.

Three checklists that appear useful in screening for autism include the Rendle-Short Checklist, the Diagnostic Checklist for Behavior-Disturbed Children (Form E-2), and the Muskegon Index of Autistic Behaviors. Each instrument has certain advantages. In some cases all three instruments might be useful for diagnosis and treatment.

Cautions in the diagnostic process require consistent quantitative and qualitative assessment of behavior. Other professionals should be involved in the diagnosis to rule out cognitive, behavioral or medical disorders. One must be concerned also for Type I and Type II errors in diagnosis that prevent treatment or treat for an incorrect diagnosis.

Parents and others concerned about an autistic child should contact The National Society for Autistic Citizens for resource-linkage, support for problems encountered with their autistic child, and for united efforts in promoting changes to benefit the child with autism.

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ADOLESCENTS AND SELF-REGULATORY BEHAVIOR

Kathleen McCoy and Karna Nelson

Interacting with normal adolescents is one of the most exciting/frustrating, enjoyable/frustrating experiences an adult can have. Adolescence is a time for personal expansiveness, intensity of feelings and overall maturation. "Rebelliousness" associated with this developmental stage is often fairly superficial, referring to external signs of nonconformity such as unorthodox clothing and language patterns (Bandura & Walters, 1959). In fact, after the teen struggle most adolescents emerge with an increased acceptance of mainstream societal values and a healthy respect for parental judgment (Meissner, 1965; Weiner, 1970).

For some adolescents, however, the balance between behaviors of dependence and independence becomes so exaggerated that special services are necessary in order for them to engage in future positive social interactions. Necessary behavior changes must take place.

Many of the adolescents referred to St. Luke's Hospital in Phoenix in the acute, short-term, residential treatment center for young adults, display an astonishing lack of selfunderstanding. They typically are unable to define why they are there, what their problems are and what their future goals will be.

Severely disturbed adolescents are limited in their ability to change their behavior. In part, this limitation is a result of a seeming lack of direction and selfcontrol. It must be stressed that self control is not to be confused with moral fiber or an exercise in will power. Self control refers to "the systematic manipulation of antecedent stimulus events and response consequences (Rimm & Masters, 1974, p. 276)." An individual who possesses self control is one with a fortunate learning history, i.e., the individual has learned to employ effective tactics to gain personal satisfaction. Increasing attention is being paid to the role of self control and mental health (Kanfer & Phillips, 1970; Watson & Tharp, 1972).

One of the central elements in successful self-directed change is goal setting. By setting goals and working toward them, a person becomes more aware of specific behaviors that need to be changed (Winter, Griffith, & Kalb, 1968; Fensterheim, 1971). By encouraging the adolescent to set goals, it becomes easier to separate the trivial from the important. Decisions about where to expand time and energy thereby become easier to make.

In working with disturbed adolescents, it is often necessary to help them to set up a goal program. The following outline has been generated from many goal setting programs and then adapted to meet the needs of adolescents.

1. Define your goals. The adolescent must ask some very broad questions. What do I really want? How can I get what I want? What could stop me from getting what I want? For example, consider the adolescent wants to own a "fire engine red El Camino" but has no money. The situation requires finding a viable source of money. What options are available? Can the adolescent get a job? Can he/she borrow money?

2. Divide goals into subgoals. The goal of owning an El Camino may not be immediately achievable. One subgoal may be to buy an earlier vintage model and fix it up, e.g., a '67 Falcon. The Falcon could serve the short term goal of owning a car and possibly provide a downpayment for the next one.

The subgoal can even be more narrowly defined to achievements on a weekly basis or daily basis, for example, earning and saving a certain amount of money on a weekly basis. If the adolescent saves ten dollars a week for the next six months, the '67, $280 Falcon is his/hers.

3. Set up models. Write down the goal and then analyze each step toward achieving that goal. If the student's goal is to be popular, make a list of very concrete and specific behaviors that can lead to popularity. One way to start is to seek out models. Ask the adolescent to name the most popular girl/boy in school. List some of the characteristics of that person. By copying the behaviors of Cathy Coed or Johnnie the Jock, the adolescent is also reminded of many other attendant social behaviors (Kelly, 1955; Baer, 1976).

4. Make goals specific and concrete. The goal may be to get a job. Most jobs call for some kind of experience. Have the adolescent read the want ads and do volunteer work in areas of interest. Suggest that the adolescent run errands for the service station manager or work in a school. Then have him/her prepare a short resumé based on volunteer experience. No one has to know whether or not he/she was salaried. The adolescent gains both experience and references for that "real" job.

5. Understand limitations. Age and talent affect goals. If the adolescent is 13 years old, the goal of driving a car or maintaining an apartment is unrealistic. In cases like this, either help him/her modify the goal or be in for a long wait. Goals have time limits, and for the adolescent, a few weeks or months can be an eternity. If the goal is to be a rock star, document the time it took for Elton John or Jerry Jeff Walker to "hit the big time."

Once goal setting has been initiated, it is more imperative to concentrate on what the adolescent is going to do about his/her behavior than to understand why he/she behaves as he/she does. Highly aggressive behavior is one of the primary characteristics that leads children to being labeled emotionally disturbed (Giebink, Stover, & Fall, 1968; Patterson & Cobb, 1971). Most adolescents seen in St. Luke's are in need of help as a result of overreliance on the fight or flight phenomenon in various, sometimes highly bizarre forms. By teaching verbal problem-solving skills or assertiveness techniques, the adolescents are provided with the option of talking with others. In effect, they are taught how to cope with what bothers them (Smith, 1975; Bower & Bower, 1976; Rimm & Masters, 1974).

Social competence appears to be a significant factor in determining the outcome of hospitalization or treatment (Craighead, Kazdin, & Mahoney 1976; Brandzel, 1963; DeMenyk & Ullrich, 1975; Susskind, 1970). A faulty learning history, however, may not have prepared the individual to cope with particular critical problem situations (De Muynck & Ullrich, 1975). By teaching the adolescent to acquire assertive behaviors, he/she becomes more aware of his/her own attitudes, actions and reactions (Phelps & Austin, 1975). In providing assertiveness training for disturbed adolescents, behavior goals usually include the socially appropriate expression of negative feelings such as anger and resentment as well as positive feelings such as affection, praise or approval (Phillips, 1977; Lazarus, 1971; Osborn & Harus, 1975; Wolpe, 1969).

Assertiveness training appears to be appropriate for both the overly aggressive and the very timid or nonassertive adolescent (Rashbaum, 1976). Differences among passive and aggressive styles of behavior are demonstrated in the way that a problem would be handled. (Alberti & Emmons, 1976; Bower & Bower, 1976; Fagen, 1975) (See Figure 1).

There are many variations of assertiveness training. The most often stated ones can be represented by Alberti and Emmons (1976, p. 177).

The most important steps are

(1) Modeling a way to deal with the situation
(2) Having the person role-play how he/she would handle the situation and
(3) Offering construction feedback or suggestions about how the person performed.

When working with disturbed adolescents, it is critical that the situation or goal be well defined and simple. Further, to increase assertiveness in a particular area, it is necessary to practice behaviors specific to that area. According to Rimm and Masters,

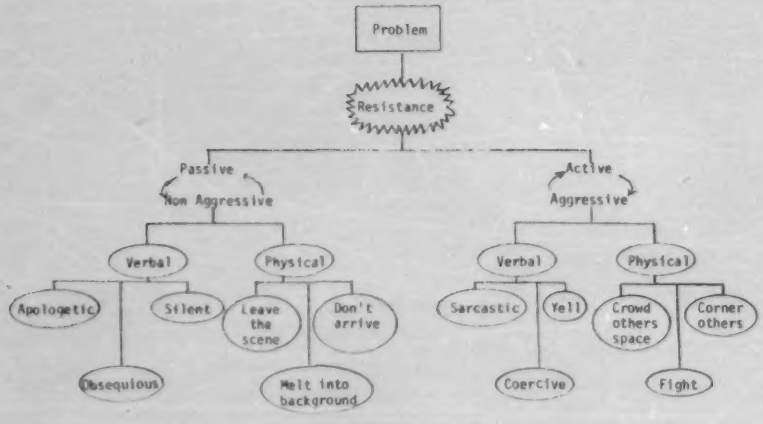

Figure 1. Passive and aggressive styles of problem solving.

> Assertiveness does not manifest itself as a broad 'trait,' and elevating assertiveness in one class of situation should not be expected to increase assertiveness in situations markedly different (1974, 117).

The severely disordered adolescents at St. Luke's have been in need of goal setting. They also needed a technique for implementing their goals in a socially acceptable manner. Assertiveness training helped to provide the adolescents with a tool that would enable them to achieve their goals.

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THE EFFECTIVENESS OF BEHAVIORAL STRATEGIES IN TEACHING PARENTS THE ART OF PARENTING

Albert H. Fink, Denzil Edge and Ronda Talley

The wide range of special services and specially trained professionals available to help parents who face problem behavior in their children might well obscure the fact that parents themselves are the most crucial agents for behavior change. Hawkins (1972) notes that parents are in the best position to help ensure preventive adjustment of the child because parents are the primary influence during the formative preschool years. Advani (1973) hypothesized that the modification of pupil behavior can only be successful if parents are involved because they spend the most time with their children. Lindsley (1966) maintained that the people in closest contact with the child can most efficiently manage that child's behavior. Parental involvement complements and supplements the efforts of professionally trained persons. Lindsley pointed out, in addition, that although teachers are in the best position among professionals to work with the child, parents' numbers provide a more favorable ratio. Parents, in fact, comprise the resource group most likely to have a consistent and prolonged effect on the behavior of children (Rickert & Morrey, 1970).

Mash and Terdal (1973) view parents as the most relevant population through which a behavioral consultant (social worker, psychologist, etc.) could mediate changes in children's behaviors. The President's Panel on Mental Retardation (1969) discussed the desirability of maintaining parent involvement in training programs for handicapped children and recommended that parent involvement be mandatory whenever handicapped children were included in special training programs. When comparing the effectiveness of the Portage Home-Visit Project and Head Start, Peniston (1975) worked on the presumption that parents who become involved in planning family activities will support these activities, thereby strengthening home life and promoting child development. Parent involvement was considered to be the most important main activity in this project.

Parents can also provide continuity between the school and the home when both the parents and the teacher are trained in the use of behavioral principles. Rickert and Morrey (1970) found that if parents are trained in the proper, consistent and efficient use of behavior management principles, then the efforts of the school, the parents and the child would be optimum. Trupin, Townes, Wood and Smith (1975) concluded that parents are the most competent persons available to assist the child in achieving his developmental potentialities with the home, school and community.

Wahler, Winkel, Peterson and Morrison (1965) found it increasingly apparent that undesirable behavior can be treated more effectively where it is most likely to occur: in the home. Ross (1972) wrote in similar vein:

> If behavior is to be modified, the modification must take place when and where the behavior manifests itself. This is rarely the therapist's consulting room, and as a consequence, behavior therapists working with children frequently find themselves working through the adults who are in a position to be present when the target behavior takes place and who have control over the contingencies of reinforcement (p. 919).

Family involvement is, therefore, clearly recognized as an essential component of intervention for children with behavioral difficulties from educational, legal and ethical perspectives (Karnes & Zehrbach, 1975).

This paper addresses itself to the programmatic aspects of parent-child interventions and emphasizes throughout the application of tested behavioral principles. Data on alternatives available to help parents understand and deal successfully with child behaviors will be provided. Parent training programs specifically designed to help parents become effective change agents will be discussed. In addition, the strengths and weaknesses of current methodological practices in behaviorally oriented training programs will be explored. Finally, the steps deemed appropriate for developing parent training programs will be outlined.

BEHAVIORAL PRINCIPLES AND PARENT TRAINING

There is a considerable body of support for training parents in the application of behavioral principles. O'Dell (1974) delineates these reasons: (a) the ability for persons unskilled in sophisticated therapy techniques to learn the principles of behavior modification and carry out treatment programs; (b) behavior modification is based on empirically derived theory; (c) many persons can be taught at one time; (d) generally only a short training period is required; (e) a minimum of professional staff can have more treatment impact than in one-to-one treatment models; (f) many parents like a treatment model that does not assume "sick" behavior based on the medical model; (g) many childhood problems consist of rather well defined behaviors that are conducive to behavioral treatment; and (h) the applicability of behavior modification in dealing with problems in the natural environment.

Bandura (1969) has observed that parents actually use behavior modification in everyday living although they may not always be cognizant of the fact and that such haphazard applications of this potentially powerful tool should be avoided. Parents intuitively employ rewards in their attempts to influence and modify behavior, but their efforts often produce limited results since the methods are used improperly, inconsistently or inefficiently. In many instances considerable rewards are bestowed, but they are not made conditional upon the behavior that change agents wish to promote; long delays often intervene between the occurrence of desired behaviors and intended consequences; special privileges, activities and rewards are generally furnished according to fixed time schedules rather than performance requirements; and in many cases, positive reinforcers are inadvertently made contingent upon the wrong types of behaviors (pp. 229–230).

Hawkins (1966) supports this view and describes how behavior modification can be used effectively by parents. Parents, he elaborated, can use such management either consciously to achieve desired results or unconsciously to receive unknown and sometimes unwanted results.

It is not at all clear that parent training on behavior modification is for everyone (Baker, 1973). Salzinger, Feldman and Portnoy (1970) reported success in parent training programs relating to the educational level, intelligence and particularly in the reading ability of the participants. However, other studies which emphasized direct teaching of parent behaviors instead of verbal learning as utilized in the Salzinger study have found no relationship between parents' education, intelligence or socioeconomic level and training success. Leichman and Willenberg (1962) found high self esteem, low childrearing anxiety, low sex anxiety, high husband-wife agreement on childrearing techniques, low feelings of self blame, and high affectional interchange between the child and both parents related positively as an index of family acceptance. O'Dell (1974) deduced two conclusions from this information: (a) verbal learning approaches seem to work better with more highly educated parents and (b) behaviorally tailored learning programs seem to produce better results with a wider range of parents than do the verbal learning approaches.

Given the strong need for and potential growth in parent training programs (Feldman, Byalick & Rosedale, 1975) coupled with the management technology to accommodate such a need (Galloway & Galloway, 1971), an exploration of parent training programs developed and implemented in recent years is warranted.

WHAT PROGRAMS ARE REPRESENTATIVE OF POTENTIAL CHANGE?

Recent research has emphasized the use of behavior modification by parents as one of the most efficient means of effecting change in behavior (Warfield, 1975). In support of such endeavors, the National Institute of Mental Health recently awarded a grant of approximately half a million dollars to expand a behavior modification course in Kansas City, Kansas, from its current local level to the national level within two years (Brown, 1976). Warfield (1975) echoed the need for such comprehensive involvement of parents in the planning and provisions of programs for their children. Simmons (1973) pointed to the need to experiment and investigate acceptable intervention models to aid parents in their implementation. Beltz (1973) emphasized the home contract system as the technique with greatest applicability for the management, motivation and modification of children's behaviors.

Studies have consistently shown that after instruction, change in a mentally retarded child's adaptive behavior generalizes positively in everyday living skills (Blumberg, 1971; Fredricks, et al., 1971; Galloway & Galloway, 1971; Rickert & Morrey, 1970; Terdal & Buell, 1969; Salzinger, et al., 1970). Seitz and Hoekenga (1974) utilized a modeling approach for teaching mentally retarded children and their parents ways of verbally interacting. This approach significantly increased ($p < .05$) the MLU (mean length of utterance) of each child. This study stressed the need for parental opportunity to practice reacting to a child's behavior and to receive immediate feedback

regarding the appropriateness of their reaction. Doty (1975) found significance at the .01 level when employing behavior modification techniques to teach mothers of trainable mentally retarded children in eliciting obedience responses from their children. Initially, continuous reinforcement was given to the children, followed by a six-month period during which the mothers used intermittent reinforcement of behaviors in the home.

When studying interaction in mother-child pairs utilizing children who were learning disabled, Doleys, Cartelli and Doster (1976) found that mothers of children with learning disabilities perceived their children differently than did mothers of "normal" children. Although a higher rate of rewarding behavior was observed in mothers of learning disabled children than in mothers of the "normal" children, these rewards often followed inappropriate behaviors.

Trupin, Townes, Wood and Smith (1975) studied 75 children who were referred for evaluation of learning or behavioral deficits. The Reitan Indiana Neuropsychological Test Battery, the Wechsler Intelligence Scale for Children, the Alpern Developmental Profile and a reading evaluation were administered to each child. By using the neuropsychological assessment and a profile of the child's abilities across a range of behaviors, these researchers taught the parents a remediation approach. This experiment was based on the hypothesis that if documentation could be provided which clearly identified a child's disabilities as the result of developmental inadequacies or cerebral dysfunction, then parents could acquire the modification skills necessary to change their own behaviors, thus being in a better position to aid the child in behavior change.

Wiltz and Patterson (1974) evaluated the effectiveness of training parents in behavior modification techniques to alter aggressive behavior in boys. Parents in the treatment group were taught data collection procedures and skills necessary to plan and carry out the program. At the end of the five week training session, a statistically significant ($p < .05$) decrease in deviant behavior was noted in the experimental group.

The Portage Project also utilized behavior management to train parents in teaching their own children (Warner, 1973). This project was a home teaching/parent involvement program for handicapped children aged six and younger, living within a 3,600 square mile area. A home teacher visited each family one and one-half hours per week to prescribe specific activities to be taught in the coming week, to demonstrate how to teach and record behavior, and to observe the parent's teaching techniques. This intervention produced gains in mental development, language and speech development. Over an eight-month period, average I.Q. increases of over 18.3 points on the Stanford-Binet Intelligence Scale were reported (a finding statistically significant at the .01 level).

Mira (1972) noted in her study of young hearing impaired children that textbooks do not always predict what will work with a single, unique child. She studied children with a variety of behavioral problems which complicated the hearing handicap already present. Parents in this study were taught operant child management techniques which altered problems interfering with the children's development of communication.

WHAT DETERMINES THE SUCCESS OF A PARENT TRAINING PROGRAM?

Certain critical conditions must be present in order to produce a successful parent training program. Baker (1973) observed that the very characteristics of a parent who chooses to participate are influential in program success or failure. When parents are of limited intelligence, they are more likely to drop out of training. When a parent has only limited support, e.g., mothers who do not receive reinforcement from their spouse or whose families are in a state of emotional flux, failure is more likely to occur. When families have restricted budgets, dropping out is more likely to occur. Terdal and Buell (1969) found that few parents initially recognize a relationship between the child's behaviors and their responses to them. If this remained the case during the training program, failure would become almost certain.

To avoid these pitfalls, various recommendations have been offered. O'Connell (1975) stated that parents must be taught to anticipate potential problems and decide on courses of action in advance; she also pointed to the need for parental consistency in coping with the child's behavior. Baker (1973) noted that parent training groups usually go through three stages: skepticism, compliance and responsibility. The group facilitator's obligation is to help groups move as rapidly as possible to the stage of responsibility where genuine involvement of the parent is demonstrated when the role of co-teacher is assumed. Recommendations outlined by Baker include: (a) expanding traditional meeting formats (less lecture, more films, inclusion of role playing, demonstrations and discussions) and (b) increasing the incentives for attendance (paying families to participate or refunding part of the program fee). He also felt that a group facilitator should gradually phase in action requests of the parents from the initial session. Hankerson (1975) recommended that the training goals and those of the individual to be trained should be matched. He suggested role playing, dramatizations, audio-visual activities (such as slide tape presentations, films, filmstrips and video-taped activities) and informal talks by experts as means for varying the mode of instruction in parent training programs. Espinoza (1976) suggested the use of the Parent Materials Information Center to facilitate the individualization of services provided to parents and children.

WHAT ARE METHODOLOGICAL CONSIDERATIONS IN PARENT TRAINING RESEARCH?

Parent training programs are usually evaluated in terms of child behavior changes and/or measures of mother behavior change (Mash & Terdal, 1973). The single behavior-single manipulation paradigm (where the behavior and consequences are easily specifiable) offers a methodological design for reporting child-parent behavior change in a systematic manner. A typical expression of this structure is the ABAB experimental multiple-baseline design typically employed in behavioral research (Watson, 1974). Mash and Terdal (1973) suggest the use of a more complex multiple contingency design in which it becomes necessary to know the actions of all participants in a behavior—both parent and child. The authors' reasoning is that:

> first, it allows the evaluators to assess the effectiveness of training programs in terms of specifiable events, such that if a child's behavior changes it can be attributed to a change in specific mother contingencies, rather than to something else (more time spent with child, change in expectations, etc.); secondly, in order to generate some theories about parent-child behavior one must look at interactions, rather than merely recording whether or not a specific behavior increases or decreases, as a result of a single manipulation (p. 49).

O'Dell (1974) notes that parent training effectiveness is concerned not so much with theoretical validation than with applied techniques aimed at the development of technology to solve socially relevant problems. Using this reasoning, it is consistent to say that practical aspects of parent program implementation—such as cost, resources and manpower —are aspects for consideration when evaluating such a program.

Baer, Wolfe and Risley (1968) define the following criteria for evaluation of studies in this area:

> (a) Characteristics of parents and children employed in the study should be reported to allow appropriate generalization. (b) Basic demographic information should be the minimum data reported. (c) Precise behavioral descriptions emphasizing quantitative characteristics of the child changes, and the experimenter behaviors producing the parent changes should be provided. (d) Technological descriptions and operational definitions of the content of the training should be provided to an extent that the study is generally replicable. (e) Design of experiments should provide control and isolation of variables so that results can be attributed to their manipulation, and designs should include stable baseline rates to behaviors and reversal phases when applicable. (f) Measurement which stresses observable behaviors and provides reliability estimates should be provided. (g) Evaluation and measurement should emphasize factors producing generality and durability of change. (h) Costs of programs in terms of time and expense should be reported (pp. 93–94).

Certain drawbacks are evident in the way parent program effectiveness is currently assessed. Such studies suffer from sampling problems because they have to use volunteer subjects. Additional areas in need of refinement are behavioral descriptions, replicability, experimental design, measurement techniques, generality and durability, cost and efficiency, and social relevance. As Terdal and Buell (1969) noted, research in the natural environment is complex and time-consuming as well as costly. Watson and Bassinger (1974) realized that because parents, siblings and others are involved in a parent training program and because the experiment does take place in the home (the child's natural environment), stimulus control problems inherent in more traditional intervention strategies are avoided although there are a great many more variables for which to account. Even though the experimental control required of applied studies is not as great as that required of laboratory research, Baer, Wolfe and Risley (1968) presented the case that this necessarily has to be so because of society's constraints on science's manipulation of behavior for the sake of research. O'Dell (1974) admonished that rather than this being a cause for lessening research standards in parent training program effectiveness, the behavioral researcher should be more stringent in his adherence to such standards.

HOW ARE PARENT TRAINING PROGRAMS DESIGNED?

Walder (1969) and Patterson (1969, 1975) were among the first researchers to apply social learning theory principles to children through parent training. Patterson's (1975) training methods involve parents in a four-step program which lasts from five to fifteen weeks. The steps for conducting a parent training program designed by Patterson are outlined below:

a. Parents are involved in collecting baseline data on a specific set of behaviors. Parents are assigned to read a set of materials on behavioral analysis and child management during this period of time.

b. Instructions, then, are provided to parents regarding procedures for counting and graphing target behavior.

c. Parents are instructed to count the behaviors, noting the behavioral consequences, and specifying a member of the family to deliver the consequences.

d. Further assistance is provided to parents on altering reinforcement contingencies through supervision of the parents.

Walder and his associates (Walder, Cohen & Brieter, 1969), outlined these specific approaches to training parents in the use of behavioral applications. The three approaches included educational groups, individual consultations and controlled learning environments in homes. Walder et al. believe that the purpose of the educational groups is to teach parents general principles of learning theory. They, also, specify a four-step program similar to Patterson's.

a. The first phase of the system, which takes about four weeks, involves parents in identifying and recording behavior.

b. Individual consultations for the purpose of analyzing antecedent behavior and consequent events in changing the child's behavior is conducted during the second phase. This phase of the program usually lasts for about two weeks.

c. The third phase of the system, which is designed to last approximately eight weeks, is designed to instruct the parents in the procedures of shaping new behavior.

d. The fourth phase lasts about two weeks and reviews the principles of behavior and data collected in the homes.

Walder et al. (1969) combine both the group and individual approaches in conducting parent training programs. The controlled learning environment is employed to assist with the learning of the principles by the parents. Generally, parents are taught the same basic principles in both the educational group and controlled group settings. However, in the controlled learning environment, the observer provides feedback on the parents' behavior and further guides the parents' actions.

The goals of these programs are to produce new, appropriate parent-child behaviors which can be carried out in the home without the presence of an observer or group leader. Parents are provided with alternatives

for dealing with the interactions within the family. Positive intervention procedures are employed by the parents for assisting the children in learning the societal standards of the time.

CONCLUSION

Parents are in need of alternative strategies for managing family interactions. Parents constantly are aware of their children's social and academic needs for survival in society. It is now time for extensive empirically based research to be conducted in the natural environment of the child. Researchers must control rigorously for those variables which lend themselves to such control, and must diligently analyze all data in deriving principles and theoretical frameworks within which optimal parenting methods can be integrated. There is indeed a fertile field for the researcher who proposes the use of scientific methodologies for developing parenting techniques and the highest social utility in achievement of such outcomes.

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THE DISCRIMINATION LEARNING PROCESSES OF BEHAVIORALLY DISORDERED CHILDREN

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Traditionally, discrimination learning has been viewed both as a discrete process facilitating development of higher level cognitive processes and as a methodology yielding significant insights into the development of cognition. Yet only inferential reference (Bandura, 1961; Clarizio & Yelon, 1967) has been made to its possible role in social learning, its relation to behavioral disorders and its potential as an intervention strategy in the modification of maladaptive behavior (Ullmann & Krasner, 1965). Behavior, either adaptive or maladaptive, may be defined as situationally specific, thus responsive to setting events, reinforcement probabilities and discriminative stimuli operant in different settings (Patterson & Cobb, 1970). As human functioning would be extremely difficult and inefficient if a discrete appropriate behavior had to be learned for every specific situation encountered, patterns of behavior learned in one situation generalize to similar situations. However, overgeneralization or generalization based on superficial or irrelevant cues leads to behavior inappropriate or maladaptive within that specific situation. Adhering to this theoretical orientation toward maladaptive behavior, both psychoanalytic and behavioral models have postulated the process of discrimination learning as necessary for discriminative behavior to replace automatic, overgeneralized reactions (Bandura, 1961). Although differing with respect to the specific techniques utilized, both models view the gaining of insight, i.e., awareness of inappropriate and appropriate behaviors and of relevant differential environmental cues, as facilitative of the achievement of this discriminative behavior. Therefore, substantial theoretical support for the exploration of the role of discrimination learning processes in social learning can be found even within divergent theoretical orientations.

Within a behavioristic orientation, behavioral disorders is defined as learned behavior that is developed and maintained by generalizations based upon superficial or irrelevant cues and as that which is inappropriate to the specific situation (Bandura, 1961). From the perspective of this definition, the more recently developed two-stage theories of discrimination learning, relying on the concept of selective attention, hold particular potential as constructs allowing extension to maladaptive behavior and social learning. The following major assumptions underlying the various attention constructs are significantly relevant in relation to such an extension.

1. Discriminative behavior requires a chain of two responses—a response of attending to the relevant stimulus dimensions, thus attending less or not attending to the irrelevant stimulus, and an instrumental response of approach-avoidance to the cues of the relevant dimension.

2. Some dimensional characteristics of the environment, either directly or through a mediator, whether reinforced or non-reinforced, exert control over the discriminative-choice response.

3. Differences in the difficulty of acquiring discrimination are a function of the number of redundant relevant cues or dimensions; therefore, an increase in the number of irrelevant dimensions or cues would lead to an increase in the difficulty of acquisition.

Within this construct, it would be postulated that behavioral disorders would be viewed as an inability to formulate an appropriate discrimination due to attention to irrelevant stimulus dimensions leading to an inappropriate instrumental response. It would be further predicted that an increase in the number of irrelevant dimensions or cues in a setting would increase the difficulty of acquiring appropriate discriminative behavior. The latter prediction reflects the complexity of social environments.

Although substantial theoretical support can be derived alluding to the role of discriminative behavior in social learning, it would appear the empirical substantiation has been limited. Evidence supportive of the view of maladaptive behavior implied is limited to inferences from studies by Ashman (1959) and Easterbrook (1959). This apparent lack of extensive empirical support may be due to the utilization of constructs from psychoanalytic and reinforcement models as the basis of investigation. Within these models discrimination learning becomes viewed as a facilitative technique utilized in conjunction with other techniques in modifying maladaptive behavior. Empirical evidence of this facilitation appears open to question. Studies of the value of awareness in increasing the precision of the discrimination have been reported to be largely negative or at best equivocal (Bandura, 1961). Studies of discrimination learning as a technique used in conjunction with other techniques have generally been more positive. However, reinforcement and modeling procedures have been the independent variables with discrimination learning the methodological construct and/or dependent variable. Therefore, results appear more supportive of the facilitative effects of reinforcement contingencies and imitative behavior on the *process* of discrimination learning in children (Brackbill & O'Hara, 1958; Penny & Lupton, 1961; Stevenson, Weir & Zigler, 1959) than supportive of discrimination learning as an independent variable. Perhaps a more effective initial, empirical approach to the exploration of the role of discriminative behavior in social learning would be the investigation of the discrimination learning *process* and its development in children exhibiting maladaptive behavior—specifically, in the utilization of discrimination learning as the relevant theoretical and methodological constructs.

A review of the literature revealed few studies of the discrimination learning processes of behaviorally disordered children. The majority of research in this area has been limited to populations of psychotic children and has
40 focused on attention factors, specifically the number of cues used and

stimulus overselectivity as well as the limited utilization of visual cues (Gilles, 1965; Hermelin & O'Connor, 1965, 1967; Hagan, Winsburg, & Wolff, 1968; Hill & Barnett, 1969; Koegel, 1971; Lovaas & Schreibam, 1971; Lovaas, Schreibam, Koegel & Rehm, 1971; Koegel & Wilhelm 1973). Investigations have failed to determine the role of irrelevant or relevant stimulus factors, particularly in relation to cue utilization. The need for an investigation of these factors was apparent, due not only to the paucity of research in the area but also to the restrictiveness of the populations studied and the resultant lack of generalizability to broader behaviorally disordered populations. Of specific interest was the extent to which behaviorally disordered children (particularly non-psychotic or organically-involved children) differ from nonbehaviorally disordered children on discrimination learning tasks containing irrelevant stimulus factors (dimensions). As consequent conditions have been explored in relation to the modification of maladaptive behavior in the research on operant conditioning, the current research sought to focus on the variables which may be operative within antecedent conditions.

The principle question investigated in this study was whether behaviorally disordered children differ from non-behaviorally disordered children in their responses on discrimination learning tasks containing irrelevant stimulus factors. Three null hypotheses were generated from this research question. The initial hypothesis (Ho_1) stated that behaviorally disordered children would not differ significantly from non-behaviorally disordered children on a discrimination learning task containing irrelevant stimulus factors. It was further hypothesized (Ho_2) that children 6 to 7, 8 to 9, and 10 to 11 years old would not differ significantly on a discrimination learning task containing irrelevant stimulus factors. The third hypothesis (Ho_3) stated that there would be no significant interaction between behavioral category and chronological age.

METHOD

Subjects

A stratified proportional sampling technique was used in the selection of subjects for this investigation. Three age strata, 6–7, 8–9, and 10–11, were defined for each behavioral category which yielded six sub-populations from which sample subjects were selected: (1) 6–7-year-old behaviorally disordered; (2) 6–7-year-old non-behaviorally disordered; (3) 8–9-year-old behaviorally disordered; (4) 8–9-year-old non-behaviorally disordered; (5) 10–11-year-old behaviorally disordered; and (6) 10–11-year-old non-behaviorally disordered. Within each subpopulation, subjects were selected using a proportional sampling technique. This procedure was used to control for sex differences inherent in the two populations investigated. The ratio of males to females was 6:1 in classes for the behaviorally disordered population; the male/female ratio for the non-behaviorally disordered population was 1:1. These differences were comparable to those generally cited in the literature on the prevalence of behavior disorders in children and the composition of special classes for the behaviorally disordered (Reinert, 1976). The 6:1 ratio was used as the basis for sampling each sub-population.

A total of 108 children-54 (18 at each age level) behaviorally disordered and 54 (18 at each level) non-behaviorally disordered served as subjects for this investigation. The mean chronological ages (CA) in months of the behaviorally disordered and non-behaviorally disordered groups were 102.22 (standard deviation = 19.28) with a range of 72–132, and 103.96 (standard deviation = 19.62) with a range of 73–131, respectively. The mean intelligence quotients (IQ) for the behaviorally disordered and non-behaviorally disordered groups were 102.80 (standard deviation = 12.23) with a range of 85–133, and 111.50 (standard deviation = 11.48) with a range of 89–113, respectively. Subjects evidencing below average intelligence, intelligence quotients below 85 IQ points on the Peabody Picture Vocabulary Test (Dunn, 1965), were eliminated from the samples.

Variables Studied

The independent variables investigated in this study were: subject characteristics; specific behavioral category indicating the degree of appropriate behaviors evidenced within a school setting (i.e., behaviorally disordered and non-behaviorally disordered); and chronological age (i.e., 6–7, 8–9, and 10–11 years old). The dependent measure used to indicate discriminative behavior under conditions containing irrelevant stimuli was the number of trials to criterion. Trials to criterion was the number of stimulus presentations required to achieve six consecutive correct responses given a discrimination learning problem containing irrelevant stimulus factors.

Apparatus

To avoid possible contamination of the effect of visual stimuli by tactual cues obtained from manipulation of the stimulus objects, an adaptation of apparatus described in a study by Osler and Shapiro (1964) was used rather than the Wisconsin General Test Apparatus or other similar instruments usually used in discrimination learning studies. The apparatus consisted of a 35mm slide projector, rear projection screen and buzzer.

Problem

A two-choice simultaneous visual discrimination problem containing one relevant and one irrelevant stimulus dimension was presented. Form was designated as the relevant dimension with color as the irrelevant dimension; three forms of the problem were developed, differing with respect to the positive cue, i.e., Form A—circle; Form B—square; and Form C—triangle.

Stimuli

The stimuli for the discrimination learning problem were nine visual images varying in form (circle, square or triangle) and color (red, blue or yellow). Size of the images was held constant (1 ½ square inch in area). Sixteen unduplicated stimulus pairs were constructed for each positive cue along the specified relevant dimension. The spatial arrangement of the positive cue was counter-balanced in order to achieve non-differential reward of the two positions of left and right. Each stimulus pair became a stimulus setting in the discrimination learning task presented each subject. Five repro-

ductions were made of each stimulus setting, thus yielding 80 stimulus settings for each form of the problem, i.e., each positive cue of the relevant dimension. The stimulus settings were presented on 2 × 2 transparent slides projected on the rear projection screen.

Procedure

Subjects were tested individually. Each subject completed a two-choice discrimination learning problem containing one irrelevant dimension following intellectual assessment, i.e., the Peabody Picture Vocabulary Test, Form A (Dunn, 1965), and pretraining. To respond successfully, subjects were to abstract form as the relevant dimension in the problem without examiner assistance. Feedback (a buzzer sound) was provided using a continuous schedule of feedback. Subjects continued responding to the stimulus settings comprising the problem until they reached criterion. Criterion was 6 consecutive correct responses or a maximum presentation of 75 trials.

RESULTS

It was the purpose of this investigation to determine if behaviorally disordered children differed from non-behaviorally disordered children on a discrimination learning task containing irrelevant stimulus dimensions. The data obtained in this investigation consisted of scores for each subject indicating the number of trials required to reach criterion on the discrimination learning task. The means and standard deviations for the independent variables are presented in Table 1.

A two-factor analysis of co-variance was performed on the data. The use of a co-variance technique was necessary due to significant initial differences between the behaviorally disordered (BD) and non-behaviorally disordered (NBD) groups on the Peabody Picture Vocabulary Test. These differences thus necessitated intelligence becoming a co-variate in the analysis of the data. A summary of the analysis of co-variance is presented in Table 2.

TABLE 1

Means and Standard Deviations for Independent Variables

Group	*n*	Original Mean	Adjusted Mean*	SD
Behavioral Category				
Behaviorally Disordered	54	18.333	18.029	21.885
Non-behaviorally Disordered	54	12.814	13.119	13.695
Chronological Age				
6–7	36	21.250	21.146	23.004
8–9	36	12.361	12.468	13.711
10–11	36	13.111	13.108	16.025

* Means resulting from the co-variance analysis.

TABLE 2
Summary of Analysis of Covariance

Source	SSX	SSP	SSY	SS'Y	DF	MS'Y	F
Behavioral Category	2133.333	−1324.444	822.259	564.843	1	564.843	1.727*
Chronological Age	171.241	−487.176	1749.796	1667.916	2	833.958	2.550*
Interaction	491.056	−172.750	1140.685	1117.986	2	558.993	1.709*
Error	14020.111	−960.556	33101.667	33035.856	101	327.088	
Total	16815.741	−2944.966	36814.407		106		

* Non-significant at the .05 level.

As indicated in Table 2, the analysis of the data revealed no significant differences between behaviorally disordered and non-behaviorally disordered children nor between children, chronological ages 6–7, 8–9 and 10–11 in their performance on a discrimination learning problem containing irrelevant stimuli. Further evidence indicated no significant interaction between behavioral category and chronological age.

DISCUSSION

The major findings of this study demonstrated no significant main effects for behavioral category nor chronological age. In other words, behaviorally disordered children performed as well on a discrimination learning task containing irrelevant stimulus factors as non-behaviorally disordered children. Changing the focus from behavioral category to chronological age yielded similar results; children of varying chronological ages, 6–7, 8–9 and 10–11 years, exhibited similar behavior on the task.

The findings relative to behavioral category are not consistent with previous empirical evidence reported by Gilles (1965), Hermelin and O'Connor (1965), and Hagan, Winsberg and Wolff (1968). One possible explanation relates to the populations studied. Previous studies indicating differences in performance on discrimination learning tasks have used psychotic or autistic children as their behaviorally disordered population. Their findings may be a function of the severity of these disorders, their suspected organicity and/or biogenic genesis as postulated by Hutt, Hutt, Lee and Ounsted (1965), Rutter (1965), Ornitz and Ritvo (1968), and Rimland (1969). The behaviorally disordered sample in this study was drawn from a population identified on the basis of inappropriate social and academic behaviors exhibited in a school setting. The population ranged in degree of disorder from mild to moderate and included few children diagnosed as seriously emotionally disturbed (psychotic or autistic). Children who were suspected of or possessed evidence of neurological or organic involvement or defect were excluded from the subject pool from which the behaviorally disordered sample was selected. The generalizability of previous studies to the population of this study therefore appears questionable. It may be that the performance of mild or moderately behaviorally disordered children more closely approximates the performance of non-behaviorally disordered children on discrimination learning tasks than that of children classified at the severe end of the behaviorally disordered continuum.

Tentative support for the previous explanation may be found in the results of post hoc analysis of the data. Post hoc analyses were undertaken because of discrepancies apparent from an inspection of the individual cell means. The mean number of trials to criterion on the discrimination learning problem for the 6–7-year-old behaviorally disordered, 8–9-year-old behaviorally disordered, 10–11-year-old behaviorally disordered, 6–7-year-old non-behaviorally disordered, 8–9-year-old non-behaviorally disordered and 10–11-year-old non-behaviorally disordered groups were 28.500, 13.722, 12.778, 14.000, 11.000, and 13.444 respectively. Post hoc Scheffé comparisons of these means revealed a significant difference between the mean score for the 6-year-old behaviorally disordered group and the mean score for the 6-year-old non-behaviorally disordered group at the .05 level of significance. Differences between behaviorally disordered groups and non-behaviorally disordered groups at the other age levels failed to approach significance at this level. Further analysis revealed a significant difference between the mean score of the 6-year-old behaviorally disordered group and the 10-year-old behaviorally disordered group at the .05 level of significance. The difference in mean scores for the 6–7 year-old behaviorally disordered and the 8–9-year-old behaviorally disordered group approached significance at the .05 level. These results warrant further investigation, particularly of factors discriminating the 6–7-year-old behaviorally disordered group from that population at older age levels as well as from the same age non-behaviorally disordered population. Severity of disorder must be at least suspected as a confounding factor because children age 6 and under who have been identified and placed in classes for the behaviorally disordered as a group tend to evidence more severe problems of adjustment than children identified and placed in classes at an older chronological age. Although this tends to be the case in programs for the behaviorally disordered, there is no direct evidence that this was the case in this particular study.

The findings relative to chronological age are consistent with both theoretical and empirical evidence concerning developmental changes in children's concept formation and discrimination learning. Alternative hypotheses support the lack of significant chronological age differences found in this study. White (1965) states that a major qualitative transition in thinking behavior occurs between the ages of 5 and 7. In summarizing an extensive amount of empirical evidence supporting this view, White (1965) describes the transition as qualitative changes including: (1) the use of language as representations of stimuli; (2) an ability to maintain orientation toward invariant dimensions of stimuli in surrounding of variance; and (3) an ability to string together internal representations of stimulus-response-consequence into sequences that projected into the future allow planning. It would appear that these factors would enhance performance on discrimination learning tasks. Bryant (1971) further supports this hypothesis by indicating a developmental change occurring between ages 5 and 7 in the direction of the use of dimension relevant (abstract) cues in discrimination learning. Piagetian theory also supports this view, as the child begins the transition from preoperations to concrete operational thinking during this period (Farnham-Diggory, 1972). The subjects in the present study ranged in chronological age from 6 years, 0 months to 11 years, 0 months with the mean chronological age for the 6–7-year-old group at 6.6 years. Thus, it

may be assumed that all subjects had achieved the qualitative changes described by White (1965) or were at least in the transition stage of this developmental process. Significant chronological age differences would therefore not be apparent in this population.

An alternate hypothesis explaining the lack of significant chronological age effects is derived from studies by Stevenson, Iscoe and McConnell (1955), Weir and Stevenson (1959) and Kendler and Kendler (1962) that suggest that there is improvement in discrimination learning up to chronological ages 5–7 with a decline after age 7 at least fo. simple discrimination problems. Thus, older children (chronological age 7 and above) may perform similar to or less well than younger children (chronological age below 7) on simple discrimination problems such as the problem presented in this study. Weir and Stevenson (1959) hypothesize that older subjects develop complex hypotheses concerning the solution to the problem that thus hinder the development of the more simple solution. In discrimination learning problems, such development and testing of alternate hypotheses and strategies may be at the expense of increased trials to criterion.

The important point to be derived from the results of this study is that the performance of behaviorally disordered children indicated that they were able to exhibit appropriate discriminative behavior in the presence of one irrelevant stimulus factor. This finding is significant in light of the role of discrimination learning in the development of behavior disorders, as well as the role of cognition in social learning (e.g., the discrimination of environmental cues as stimulus factors controlling appropriate behavior). Implications for these areas to be drawn from this study include the following: (1) Caution is warranted in the extension of a discrimination learning construct (i.e., attention theory) to behavior disorders, particularly when applied to nonpsychotic or nonautistic children classified as behaviorally disordered. Factors other than or in addition to attention and/or stimulus factors appear to contribute to the establishment and/or maintenance of inappropriate behavior in a school setting. (2) An inability to learn that cannot be explained by intellectual, sensory or health factors and that may be manifested not only as an inability to master skill subjects but also as an inability to profit from experience (e.g., social learning) has been identified as the single most significant characteristic of behaviorally disordered children in school (Bower & Lambert, 1971). These learning difficulties (both academic and social) may be a function of factors other than attention and/or the presence of irrelevant stimulus factors.

CONCLUDING COMMENTS

The present study did not attempt to investigate all the relevant variables involved in the discrimination learning processes of behaviorally disordered children. It did investigate discriminative behavior under the condition of one irrelevant stimulus factor and initially failed to confirm differences in performance due to behavioral classification (behaviorally disordered and non-behaviorally disordered) or chronological age. However, there are a number of other relevant variables that may have an effect on the discriminative behavior of behaviorally disordered children. Such variables need to be investigated prior to an acceptance of these findings.

Investigations should continue in this area of research with behaviorally disordered populations including a replication of this study with the following methodological modifications: (1) increased sample size; (2) younger behaviorally and non-behaviorally disordered populations; (3) utilization of stimuli differing from the task stimuli for pretraining to control for transfer effect; (4) extension of the dependent measure to include verbalization of the correct cue; and (5) increased and varied stimulus complexity. The latter modification is crucial as social environments contain a multitude of stimulus factors. Additional investigations are warranted in a number of directions including the effect of degree of disorder; the effect of variation in schedules of reinforcement; the effect of increasing stimulus complexity; and the effect of length of placement in classes for the behaviorally disordered. Until more is done to investigate the discriminative processes of behaviorally disordered children, actual theoretical and classroom implications may not be valid. The present study was only an initial exploration into this largely untapped area.

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THE USE OF SELF-RECORDING TO INCREASE THE ARITHMETIC PERFORMANCE OF SEVERELY BEHAVIORALLY DISORDERED STUDENTS

Herbert J. Rieth, Lewis Polsgrove, James McLeskey, Katherine Payne and Ruth Anderson

The effectiveness of external reinforcement systems for managing a variety of children's academic and social behaviors in the classroom is now well established (Hanley, 1970; O'Leary & Drabman, 1971; Kazdin & Bootzin, 1972; Rieth & Copeland, 1977). One of the important goals of education, however, is developing independent behavior. To attain this goal, several classroom studies have explored methods to train children in behavioral self-management since children who can assume responsibility for managing their behavior may have higher motivation and require less teacher attention (Brigham & Stoerzinger, 1976; Uhlman & Shook, 1976).

Research on children's self-management has assessed the processes assumed to maintain behavior in the absence of external controls: self-monitoring, self-evaluation and self-reinforcement (Kanfer & Karoly, 1972). Self-monitoring involves the self-assessment of ongoing behavior and the objective self-recording of a particular target behavior as part of a behavioral change program. Persons may use the information from self-monitoring activities in comparing their performances with personal or public standards (self-evaluation). This self-evaluation activity may, in turn, cue the person to deliver self-reinforcement when acceptable behavioral standards are met (Kanfer, 1975).

Most self-management studies in which children served as subjects have evaluated a combination of self-monitoring, self-evaluation and self-reinforcement for maintaining behavior. There is some evidence indicating that, in combination, these procedures maintain children's appropriate academic and social behaviors at rates equivalent to or higher than external methods after the children are trained first in external-control programs (McLaughlin, 1976; Polsgrove, 1977).

Some studies have evaluated the reactive effects of self-recording independent of the contributions of self-evaluation and self-reinforcement. Broden, Hall and Mitts (1971) reported success in increasing the classroom attention of a motivated pre-adolescent girl when she recorded her study and non-study behaviors and reported these to a counselor. An unmotivated male student, however, did not reduce his disruptive classroom behaviors by recording them. Gottman and McFall (1970) increased

the oral participation in a class for problem high school students by having them keep a record of their urges to speak out in class discussions. McKenzie & Rushall (1974) improved both attendance and performance of adolescents in a swimming class through self-recording and public charting of their data. Reiber, Schilmoeller and LeBlanc (1976) found that when preschoolers counted their on-task behaviors while listening to a story, their overt attention increased.

A major problem with these studies, however, was that the contribution of situational or other treatment variables remained largely uncontrolled. The insufficient control of unwanted variables may explain why self-monitoring has produced mixed effects across a number of studies (Kazdin, 1974). Cohen (1977), however, carefully controlled the contributions of such factors as teacher reinforcement, prior training, demand characteristics and other self-management procedures in evaluating the effects of self-recording, graphing and public display of children's behavioral data. Self-recording was virtually ineffective compared with a teacher-controlled token program in maintaining six children's on-task behavior and in reducing their disruptive behavior.

Another explanation of the unpredictable outcomes found in self-recording studies may relate to the type of behavior being recorded. In studies in which the children's academic performance or potential access to reinforcement was associated with the recording activity (Gottman & McFall, 1970; Broden, Hall & Mitts, 1971; McKenzie & Rushall, 1974; Reiber, Schilmoeller & LeBlanc, 1976), self-recording produced desirable results. When children recorded disruptive behaviors (Broden, Hall & Mitts, 1971; Cohen, 1977) or attending behaviors without receiving external feedbacks or consequences (Cohen, 1977), little or no change in behavior resulted. The present study was designed to explore the effects of self-recording on student academic performance and to determine if self-recording when associated with potential reinforcers (grades) and/or social praise would increase its effects upon academic behavior. The following studies all involved severely behaviorally disordered children recording their grades on math assignments as a means of improving their performances.

STUDY 1

Subjects and Setting

The subjects—Alvin, 11, Barry, 13, and Carl, 13—lived at a state mental hospital and attended a special class located on the hospital grounds for children with severe academic and social problems. Each student had undergone a complete educational assessment and was provided an educational plan tailored to his needs. The teacher, who also served as the experimenter, started and later evaluated the students' educational programs. All students were performing more than two years below their expected academic levels in math and frequently either failed to turn in their math homework or completed their assignments with many errors.

Target Behavior

The teacher selected the percentage of correct responses on the daily math homework assignments as the target behavior. She considered this

behavior important primarily because it increased the amount of time that students spent in responding to academic materials (see Berliner, 1977). She chose a homework assignment which was to be completed in the cottage because it allowed other staff members to shape the students' independent study skills in after-school activities.

Procedures

Baseline. During the baseline period, the teacher instructed the students in small groups, first demonstrating strategies for solving a particular type of math problem and then assigning students comparable problems to solve. While the students worked independently, the teacher assisted those who had difficulty. At the end of the daily math period, she assigned students homework problems taken from their basic texts that were comparable to those introduced in the daily lesson. At the beginning of each school day, the students turned in their assignments; the teacher immediately scored their papers, recorded the percentage of correct answers and returned the papers to the students for correction. To calculate the math scores, she divided the number of problems answered correctly by the number of problems assigned.

Self-recording. The teacher used a multiple baseline design to evaluate the effects of the self-recording program. The teaching procedures remained the same as those used in the baseline period. At the beginning of the self-recording phase, however, the teacher proposed that Alvin graph his daily math scores to improve his academic progress. Alvin enthusiastically agreed, and on day 12 of the study, he began graphing his homework scores. Weekly checks showed that his graph corresponded perfectly with the teacher's record.

Barry stayed in the baseline phase until the teacher suggested on day 22 that he, too, begin recording his math homework scores. Like Alvin, Barry agreed and began his self-recording activities. Systematic checks of Barry's self-recorded data did not deviate from the teacher's record.

Meanwhile, Carl continued under the baseline conditions until the teacher proposed on day 27 that he record his daily math scores like the other boys. He agreed and began graphing his math scores. His data record, like the others, did not deviate from the teacher's.

RESULTS

Baseline

During the baseline period, Alvin correctly answered an average of 43 percent of his assigned problems (see Figure 1) and failed to turn in only one assignment. Barry correctly solved an average of 37 percent of his daily assigned problems; he also failed to turn in only one assignment. Carl maintained an average of 35 percent correct during baseline and neglected to turn in six assignments.

Self-Recording

When the teacher initiated the self-recording procedure, Alvin's mean percentage of correct answers increased 49 points over baseline to 92

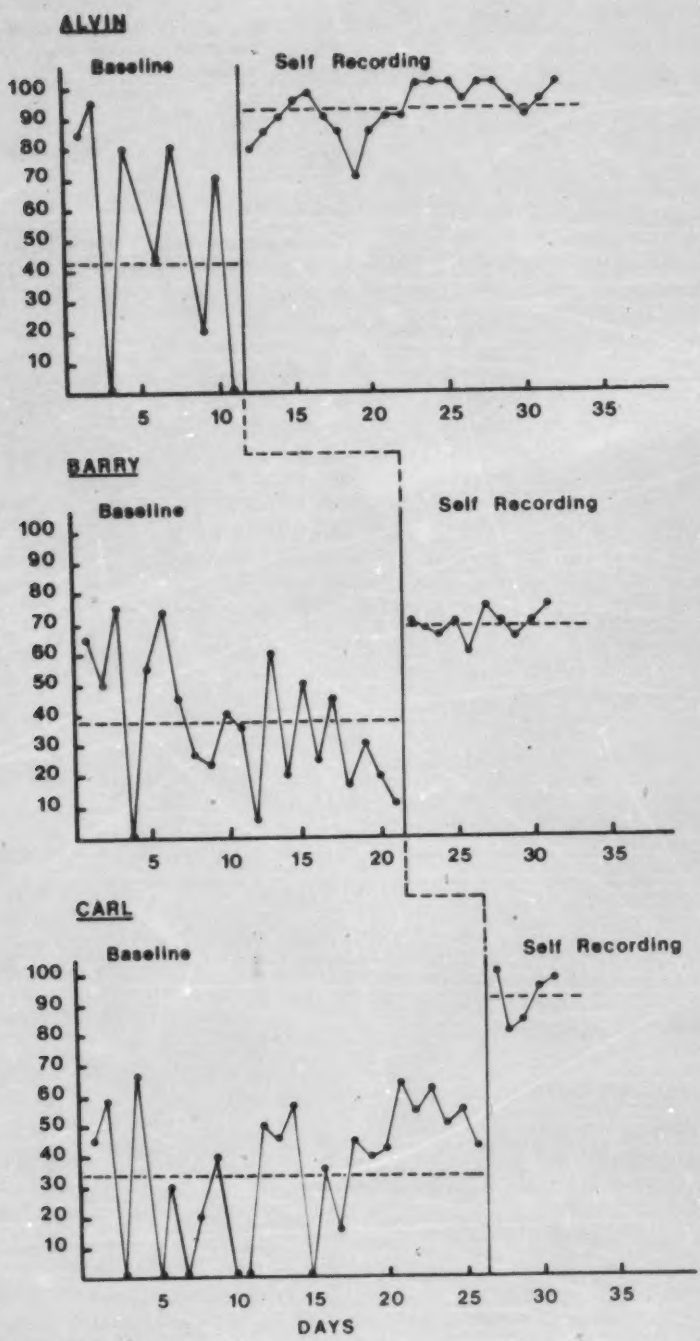

Figure 1. Percentage of correct mathematic responses.

percent; Barry's average percentage of correct responses increased 32 points to 69 percent, while Carl's rose 56 points to 91 percent during the self-recording phase. During this condition, each student submitted all papers on time.

STUDY 2

Subject and Setting

This study was conducted in a regular fifth-grade classroom located in a suburban community. The teacher provided instruction and served as the experimenter. The student, David, was an 11-year-old boy who had a long history of academic and social problems. Since his initial enrollment in school, David had been repeatedly referred for psychological services and during the course of the study received therapy from a local community mental health agency. Because of his severe behavioral problems, he spent his third and fourth school years in a self-contained class for behaviorally disordered children. At the beginning of his fifth-grade year, David was placed in a trial program in a regular classroom and immediately began displaying problem behaviors. He often teased and provoked fights with other children on the playground. In the classroom, he frequently made noise, talked out without permission, annoyed and distracted the other students. David also was easily distracted from his work, which resulted in his poor and incomplete assignments.

Since the teacher found that the greatest amount of inappropriate behavior occurred during the daily math period, she decided to improve his performance in this area.

Target Behavior

The target behavior selected was the student's math performance. The teacher chose an academic-target behavior over one of David's numerous anti-social behaviors because of the incompatibility of academic achievement and disruptive behavior. She reasoned that improvement in David's achievement might produce a decrease in his disruptive behavior. Ayllon and Roberts (1974) used this approach to demonstrate that when disruptive students were reinforced for improving their academic performance, the frequency of their disruptive behavior decreased. With this study suggested as a model, the teacher chose the percent of math problems answered correctly on daily math assignments as the target behavior.

Procedures

Baseline. This study followed an ABAB, reversal, design. The teacher collected the baseline and treatment data for the study in a daily, 39-minute-long math period. During the first 10 minutes of this period, she demonstrated solutions for a particular type of math problem to the class and answered any related student questions. For the remaining 20 minutes, students worked on solving problems similar to those presented in the demonstration; the teacher was available during this time to aid students who encountered difficulties. She collected their papers at the end of the
54 period, scored and returned them the next day. The students' daily math

scores were calculated by dividing the number of problems solved correctly by the total number assigned for that period. David received no special treatment during this period, and it is notable that he never asked the teacher for assistance during this time.

Praise. During the first intervention phase, the teacher continued to use the teaching procedures just described. In addition, she praised David three times during each 20-minute work period contingent on his working on his assignment. Praise was given David for working on problems, as well as for correct answers.

Self-recording. In this phase, the teacher used exactly the same instructional procedures employed during the Baseline and Praise conditions and continued to praise David three times during each math period. In addition, the teacher arranged for David to graph his daily math scores when they were returned to him. Each week the teacher checked the reliability of his self-recording and in each case found it to be accurate.

Baseline 2. All treatment procedures were discontinued during this phase. David was not given praise for his work nor was he allowed to graph his math scores.

Self-Recording 2. The procedures employed in this phase were exactly the same as those in the initial Self-Recording period: the teacher reinforced David three times each period and allowed him to graph his math scores.

RESULTS

David averaged 43 percent correct responses per assignment during the initial baseline period. During the second phase, when the teacher praised him for acceptable performance, David's mean correct responses increased to 50 percent and stabilized at that level. When the self-recording procedure was introduced, David's average daily math score increased markedly to 83 percent (see Figure 2). When the praise and self-recording procedures were withdrawn in the second baseline condition, David's average correct percentage dropped to 72 percent. Upon reintroduction of the praise and self-recording procedures in the final phase, David's average daily math score gradually increased to 75 percent and was in accelerating trend when the experiment was concluded.

DISCUSSION

The results of the present studies indicate that self-recording effectively increased the percent of correct math responses of four severely behaviorally disordered children. In the first study, introducing self-recording increased students' daily math scores an average 46 percentage points. In the second study, self-recording resulted in an increase of 33 percentage points over the social-praise condition and a 40 percentage point increase over the baseline levels of student performance.

Therefore, in Study 1, the teacher found that self-recording could increase academic performance. It is important, however, to point out that she did not specifically control for the effects of teacher reinforcement. In the

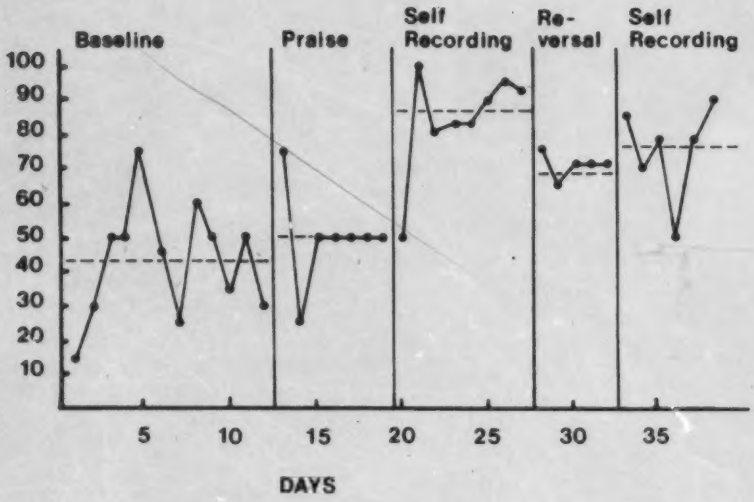

Figure 2. Percentage of David's correct mathematics responses.

second study, however, the teacher demonstrated the effectiveness of the self-recording procedure and controlled for the effects of teacher reinforcement.

During the first treatment phase in the second study, the teacher programmed three interactions with the student contingent upon his working on his assignment. This treatment produced only a very slight increase in the mean accuracy of math problems. When the teacher added the self-recording treatment, the student's percent of correct responses increased significantly, indicating that the self-recording procedure alone was a viable treatment. In fact, self-recording was so effective as a treatment that the student's performance did not fall to prior baseline levels once it was removed. One explanation for this is that the student's behavior had come under self-control.

Self-recording in this study may have operated as a discriminative stimulus both for social reinforcement from the teacher as well as for self-reinforcement for meeting acceptable performance standards. This observation is supported by the fact that when the teacher reinstated self-recording and praise procedures in the final phase of the study, the student's performance accelerated.

Because of the encouraging results yielded in these studies, further investigation of self-recording of academic performance is recommended. Future studies could replicate the procedures used in these studies with other types of students in other subject areas as well as control for the order of praise and self-recording treatments. It is recommended that these studies control for competing external variables such as teacher-reinforcement, observer presence, demand characteristics and prior training.

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MODELING EFFECTS WITH SEVERELY BEHAVIORALLY DISORDERED CHILDREN

Alfonso G. Prieto, Stanley H. Zucker, Larry F. Snead and Cynthia Cochran

There is considerable evidence to indicate that modeling effects the behavior of both normal and special populations. Research has demonstrated the effectiveness of modeling techniques with normal children (Bandura & Huston, 1961; Bandura, Ross & Ross, 1961; 1963), dog-phobic children (Bandura, Blanchard, & Ritter, 1968), emotionally disturbed children (Walters & Willows, 1968) and adolescent delinquents (Sarason & Ganzer, 1969). More recently, modeling techniques have been used successfully with retarded children (Talkington & Altman, 1973; Talkington, Hall, & Altman, 1973) including severely and profoundly retarded (Zucker, 1976; 1977).

Most of the research on the utility of modeling techniques with severely emotionally handicapped children has been concerned with verbal imitation. Lovaas and his associates (Lovaas, Berberich, Perloff, & Schaeffer, 1966) created a program of speech therapy for schizophrenic children involving differential reinforcement of the child's imitative verbal responses. Analysis of the acquisition of verbal imitation showed that as the training progressed, the rate of mastery increased. A similar program (Hingten, Coulter & Churchill, 1967) was effective in increasing not only the vocalizations, but also the imitative use of the body and objects by two mute autistic children. Both of these studies made use of powerful reinforcers: food, water and release from physical restraint.

Other studies involving verbal imitation have examined certain model variables. Eriksen (1974) investigated the comparative effectiveness of film models and live models in establishing imitative vocalizations in four nonlanguage children. One of the children was a 6-year-old autistic child. This child acquired rapid imitative vocalizations in the live model condition, but only partial imitative vocalizations in the film model condition, even though he acquired an adequate attending response in both conditions. Coleman and Stedman (1974) reported success using a peer model for the voice volume training and labeling vocabulary training of a 10-year-old autistic child. Across alternating trials both the model and the autistic child were rewarded for correct responses. The authors suggested that this modeling technique, at least for volume and label training, may be more effective than the Lovaas-type technique.

These studies emphasize the importance of reinforcement in the development of imitative behavior in autistic children. Lovaas et. al (1966), for example, indicated that, at least for their subjects, reward immediately follow-

ing imitative behavior was necessary to maintain that behavior. As important as reinforcement may be, it is surprising that there is no research directly concerned with the spontaneous imitation of autistic children. (Spontaneous imitation as described here refers to imitation without explicit reinforcement or verbal instruction.) Echolalic speech is known to be a common characteristic of autistic children, yet their ability to spontaneously imitate is generally depicted as being poor. For example, Marschak (1967) observed that the three autistic children in her study spontaneously imitated the play activity of a parent less than the retarded and normal children did. Hingten, Coulter and Churchill (1967) reported that pre-test scores showed that the autistic children in their study had some nongeneralized imitative ability in the use of body parts, but little or no imitative ability for the use of objects or verbal responding.

Talkington and Altman (1973) report the spontaneous imitation of retarded children (IQ = 30–79). The children in the treatment groups were exposed to either aggressive or affectual modeling conditions. The findings indicated that the aggressive modeled groups demonstrated significant imitative, aggressive response patterns, while the affectual modeling appeared to suppress aggressive responses rather than enhance affectual response patterns. Studies by Zucker (1976; 1977) report imitation on modeling tasks even among profoundly retarded children (IQ = 8–22).

The purpose of the present exploratory investigation was to record the behavior of severely behaviorally disordered children after exposure to a live model exhibiting either aggressive or affectual responses toward a surrogate person.

METHOD

Subjects

Six children were selected from the day school population of a private institution for autistic and severely disturbed children. The subjects' chronological ages ranged from 5 to 14 years. The subjects were randomly assigned to one of three conditions: exposure to aggressive model, exposure to affectual model, and no model control group.

Procedure

Each child was brought into a bare room containing a Bobo doll and a chair. The child was instructed to sit down in the chair. As soon as the child sat down, the model began performing the appropriate behavior. In the aggressive modeling condition the model kicked, threw, and hit the plastic doll. In the affectual modeling condition the model petted, kissed and caressed the plastic doll. After three minutes of the modeling condition, the model told the child to wait in the room and that he would be right back; then the model stepped out of the room. Two observers watched the child through a one-way mirror and recorded each child's responses toward the Bobo doll. The observation period was three minutes long; responses were scored on a time-sampling basis every five seconds, according to whether the aggressive or affective responses were present in the child's behavior. After the three-minute observation period had ended, the model entered the
60 room and accompanied the child out to his classroom teacher.

Each child in the control group was exposed to three minutes of informal contact with the model outside of the experimental room, before being placed inside the room with the plastic doll. These children received the same verbal instruction as the modeling condition children, and the scoring procedure was identical with that used with the other children.

RESULTS

The subjects' responses are reported in Figure 1. Each subject's score was computed by averaging the five-second intervals reported by the observers. Inter-observer reliability was 1.00 in the control condition, .94 in the affectual condition and .97 in the aggressive condition. Overall inter-observer reliability was .98.

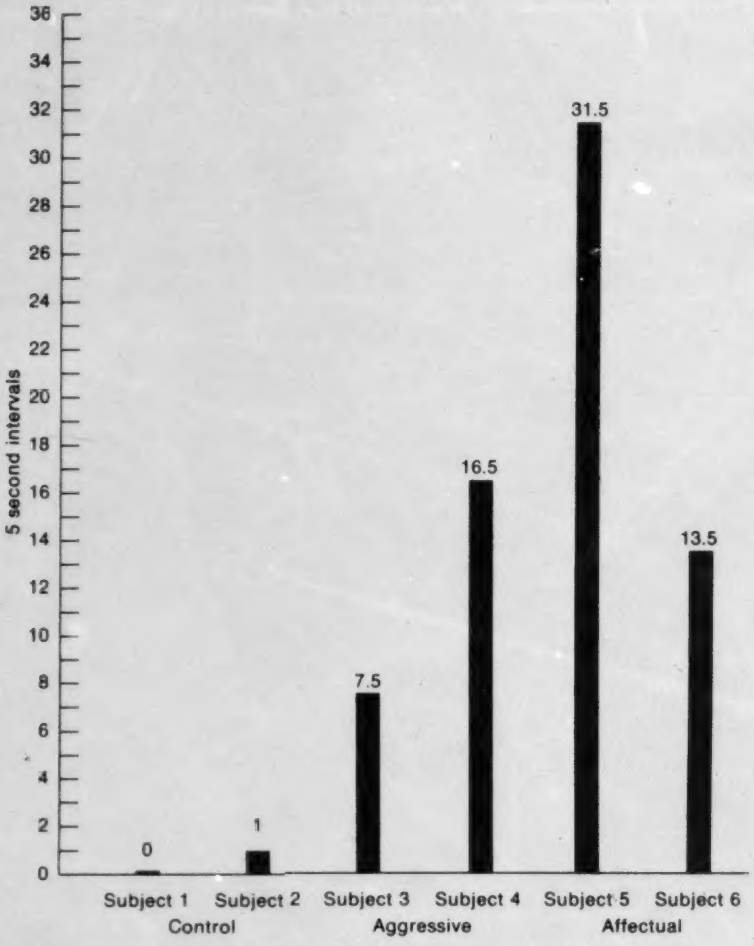

Figure 1. Children's responses to modeling conditions during first three minutes.

As Figure 1 depicts: in the control condition Subject One did not respond, Subject Two made 1 affectual response; in the aggressive condition Subject Three made 7.5 aggressive responses and Subject Four made 16.5 aggressive responses; in the affectual condition Subject Five made 31.5 affectual responses and Subject Six made 13.5 affectual responses.

DISCUSSION

While this was limited to an exploratory pilot investigation, the results are dramatic enough to clearly indicate the need for larger scale investigations in this area. Future investigations should be aimed at replicating these imitation effects and also at delineating and applying the parameters related to modeling in this population of behavior disordered children.

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PROGRAMS FOR BEHAVIORALLY DISORDERED CHILDREN AT THE NEUROPSYCHIATRIC INSTITUTE

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In the treatment of behavior disorders, the school classroom represents a critical part of the therapeutic environment. Since 1961, the Neuropsychiatric Institute (NPI) School has been part of the Children's Division of the UCLA Department of Psychiatry. Originally begun on a modest scale to provide schooling for children on two psychiatric wards, the school was expanded to include patients on two additional wards of the Department's Mental Retardation Program that was opened in 1969. As in other university medical centers, child patients also serve as teaching cases for the Department's psychiatric residency program.

Of the children's wards, two are for adolescents: one which has a short-term treatment program for mildly retarded adolescents with behavior problems and another which provides psychotherapy for disturbed adolescents. There is a third ward which offers psychotherapy for young disturbed children and a fourth ward for mentally retarded and developmentally disabled children *with behavior disorders.* There are usually from 60 to 70 children hospitalized on the four wards at any one time. Most have had significant school behavior problems prior to admission. Average length of hospitalization is about four to five months and ranges from two weeks to over a year.

Teachers in the school attend weekly ward meetings and are considered part of the interdisciplinary treatment team together with psychiatrist, nurse, social worker, psychologist and rehabilitation therapist. They also provide reports for the medical chart on each child's school progress, with which ward staff and therapists can compare their observations of progress in other hospital settings.

The staff of the NPI School approaches the problem of providing a school for such a diverse child population by placing children in classroom programs not on the basis of psychiatric or medical diagnoses, but on the basis of their level of readiness for classroom functioning. Initial assessment of readiness is made through evaluation of each child's prior school experience, by tests of developmental levels or academic achievement, and by observation of the child's classroom performance during his first few days of hospitalization. Children are brought to the school by nursing staff and attend three periods of academic instruction per day. Under the direction of the hospital's Rehabilitation Therapy Program, they also attend an additional session of arts and crafts activities as well as a session of

supervised physical education and recreation activity designed to assist them in gross and fine motor skills. The remainder of their day is devoted to individual, group or family therapy sessions and other aspects of milieu therapy on the hospital wards.

Although other members of the interdisciplinary team may carry the primary responsibility for direct treatment of the child's social and emotional problems, the hospital teachers are involved in such treatment, consistent with their goal of preparing the child for functioning in a classroom setting. Teachers set specific educational and behavioral goals for each child in their classroom, based not only on the teacher's initial assessment of educational readiness, but also on psychiatric or medical treatment goals for the child derived by the interdisciplinary team.

A child's transition to public or community schools becomes a primary goal from the very first day of admission to the NPI School. Three components are considered to be basic to every teaching situation in this regard: curriculum, conditions and consequences. In the NPI School, these components are conceived as functionally related continua beginning at rather basic functioning levels and moving to levels of functioning required for regular classroom enrollment.

Curriculum is defined as the educational or developmental task, including materials related to the task. Conditions include both the instructional setting and the specifications for task performance (input and response modes). Consequences are the reinforcing or aversive events that follow the child's task performance or his classroom behavior. At every level of schooling, there exist continua for each of these dimensions that delineate a child's readiness to function in a classroom. Representative examples are given in Table 1, and related studies are listed in the reference section.

In dealing with behaviorally disordered children, the NPI School approach is to consider *antecedent* events as the critical elements of the learning situation (Forness, 1977). Ongoing assessment and observation of curriculum or developmental levels, selection of materials, modality considerations and the choice of instructional setting are therefore considered the most important aspects of the learning situation. Consequences may be less important to classroom learning, if and when appropriate curriculum or developmental tasks are selected. Only after the first four continua have been exhausted in an attempt to enhance the child's behavioral and academic progress is the decision made to move to lower levels of the reinforcer or aversive hierarchies.

Obviously, not every child attains the highest levels on a continuum before being discharged; and few if any attain the highest level on all continua. A child's level on one continuum, moreover, may depend upon his position on another. For example, a child may function in a large instructional group only with the aid of checkmarks as reinforcement, yet work in a high-interest remedial reader simply for the satisfaction it brings. Such decisions are based on treatment goals derived by the interdisciplinary team and on the rate of each child's observable progress in the classroom. In some cases a teacher may begin a child at very low levels of functioning on a curriculum, condition or consequence continuum so that he can experience success as a learner. Once he has done so and begins to experi-

TABLE 1

Continua of Readiness for Classroom Functioning of Children with Behavior Disorders

Curriculum		Conditions		Consequences	
Tasks	**Materials**	**Modalities**	**Setting**	**Reinforcers**	**Aversives**
Academic subjects, e.g. language, social studies, and science	Regular textbooks or worksheets	Printed input written response	Large group participation	Task accomplishment	Self disappointment
Basic academic skills, e.g. reading, math and writing	Supplementary texts or worksheets	Verbal input written response	Individual instruction in a large group	Knowledge of positive results	Knowledge of negative results
Beginning academic tasks, e.g. letter and number concepts, and word recognition	Remedial materials	Verbal input verbal response	Small group participation	Social approval	Ignoring
Developmental tasks, e.g. receptive and expressive language, gross and fine motor skills, and matching and memory skills	Individually designed or adapted materials	Visual input verbal response	Individual instruction in a small group	Pleasant activity contingent on task accomplishment	Social disapproval or reprimands
		Verbal input motor response	One to one instruction	Checkmarks	Time out
				Tokens	
		Visual input motor response		Tangibles	Exclusion from class

ence success at those levels, the teacher can begin to provide experiences for him at higher levels. For both teachers and hospital staff, each continuum presents a useful point of reference for a child's readiness for classroom functioning and represents the focus of his individual behavioral and educational program.

Operationally, there are four units in the NPI School. The *early childhood program* contains approximately 16 children who are 2 to 11 years of age but who are functioning at developmental or readiness levels characteristic of kindergarten or preschool children. Diagnostically, these children can be termed mildly or severely retarded, autistic, seriously emotionally disturbed or aphasic. All are grouped and regrouped at each period according to their individual levels in language, gross and fine motor skills, socialization, and cognitive skills such as memory, color concepts, number concepts and the like (Flaharty, 1976). These children characteristically function at the lower levels of the six continua. The *elementary program* contains approximately 18 children in two classrooms: a "preacademic" class for children functioning at the first or second grade level who work individually in a group setting with a checkmark reinforcement system, and an "academic" class for children at the third to seventh grade level who often work as a group and who can function without the aid of a token reinforcement system. Many of the latter group are able to be placed in regular classrooms upon discharge. There are mildly retarded, learning disabled and disturbed children in both classrooms and the age range is 6 to 12 years.

The *interim program* contains approximately 16 adolescents who work on individual lessons in a group setting with a point system as reinforcement. Academically, they function at the elementary grade levels. A few are moderately retarded but most are either mildly retarded or severely learning disabled. The *secondary program* contains approximately 18 adolescents capable of junior high or high school achievement levels. They work on individual lessons and move between two classrooms throughout the day: an English/social studies class and a math/science class. They work without the aid of token reinforcement systems and plan their own academic programs with the aid of a teacher. Most are capable of regular high school enrollment upon discharge.

Teaching staff are also responsible for decisions regarding an appropriate school placement for each child upon discharge, taking into account available educational resources in the child's home community. Placement may range from a regular classroom in public schools to special classes or even private residential schools. Considerable effort is expended toward securing appropriate educational placement since the right match between a child's level of readiness (as defined by his position on various continua) and the class in which he is ultimately placed is critical to his subsequent school success.

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THE ROLE OF PUNISHMENT WITH BEHAVIORALLY DISORDERED CHILDREN

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One of the effects of mandatory special education legislation will be an increase in the number of seriously behaviorally disordered children enrolled in public school programs. This trend will undoubtedly have enormous effects on the school systems. It will require changes in facilities, training, administration, supervision, parent-teacher interaction and pupil-teacher interaction, to name a few. It is one aspect of the pupil-teacher interaction—the appropriate use of punishment—that is the focus of this paper.

As more and more behaviorally disordered children enter classroom, teachers will recognize several changes. Initially, there will be an increase in the number of severe maladaptive behaviors present in the classroom. Each teacher will be required to deal effectively with these behaviors if he or she is going to be able to instruct the child in new, more adaptive behaviors.

The techniques teachers have found to be effective in the past with mild or moderate problems may not work with the more severely involved child. Systematically ignoring inappropriate behavior and differential reinforcement of appropriate behaviors alone may be ineffective, ethically impractical or dangerous to the child or others (Gardner, 1969; Lovaas & Simmons, 1969).

As these children move from custodial care to educational settings, the demands on the child will also change. Many of these children have a limited number of behaviors with which to act on their environment. When the teacher places demands on them, they may express their dissatisfaction in their limited and often maladaptive ways.

In a custodial setting, it is often possible to avoid, or at least reduce, the incidents of tantrums, head-banging, self-induced nose-bleeds and seizures. However, in a teaching situation, it is unlikely that a teacher will be able to design a program that will require new behaviors from a child and not produce instances of that child's manipulative behavior. Even the most severely involved child is often a master at controlling his environment with his limited repertoire of behaviors.

Faced with an increased number of children with severe maladaptive behaviors, increased frequency of these behaviors due to new demands placed on the child, and the necessity to reduce or eliminate these maladaptive behaviors, teachers will have to develop strategies that allow them to teach these children effectively. One such strategy is the *appropriate* use of punishment.

The authors recognize that the use of punishment, although gathering increasing support in the literature, is an emotional, psychological and sociological issue. It is not suggested here that the use of punishment ever be capricious—the emphasis here is on the *appropriate* use of punishment.

In this article we will discuss what we mean by punishment, when to punish, types of punishment commonly used with seriously behaviorally disordered children, and limitations on the use of punishment.

WHAT IS PUNISHMENT?

Technically, punishment is any event that follows a behavior which decreases the probability of that behavior reoccurring. Punishment can be of two types: "on-set" punishment, i.e., presenting an aversive or noxious stimuli, or "off-set" punishment involving the removal of a positive stimuli following the behavior you want to weaken. Punishment can take any form depending on the child. Some children hate M&M's and thus these candies can become a punishment. Other children love being nagged or yelled at, perhaps because any attention is better than no attention at all, and if the nagging stops it would be punishment. What counts as punishment is determined by the child in question in the environment where the maladaptive behavior occurs. If the child's behavior is suppressed or decreases when followed with a specific stimulus, that stimulus can be called a punishing stimulus.

The use of punishment is not new, but the systematic use of punishment is new. Just as the systematic use of reinforcement has been shown to be more effective than occasional random reinforcement, so has systematic punishment been demonstrated to be more effective than random punishment. The careful monitoring of behavior and the daily measurement of the effects of our interventions allow us to determine if our punishment is effective, i.e., is the aversive stimuli actually a punisher for the behaver and setting in question? Monitoring effects of punishment procedures also aides in determining how rapidly and consistently the behavior is changing. Because punishers can be viewed along a continuum from mild (frowns) to severe (electric shock), it is important to be able to continuously evaluate the effects of punishment. Because the systematic use of punishment is so effective, it may be cause for concern. Its use can become too easy, too matter of fact. It can replace, rather than augment, other procedures that are effective in building adaptive behaviors. The question of whether or not punishment should be used has frequently been discussed in the literature (Solomon, 1964; MacMillan, Forness, & Trumbell, 1973; Parke & Walters, 1967).

WHEN TO PUNISH

Most of the time, punishment should not be used when teaching children: *all* the other techniques for changing behavior should be tried before punishment is considered. Punishment is not a substitute for carefully planned and monitored programs that strengthen adaptive behaviors that will compete with the maladaptive ones. Punishment procedures are last-resort procedures, not the first choice interventions.

There are four situations when it may be appropriate to punish the behavior of seriously behaviorally disordered children. First, punishment may be appropriate when the differential reinforcement of competing behavior and extinction (e.g., ignoring) procedures have not worked. If a carefully planned and monitored program to strengthen adaptive competing behaviors has been tried and the data show that the maladaptive behavior is not decreasing at an acceptable rate, or if the behavior is increasing *over an extended period of time*, then punishment procedures should be considered.

Second, one might consider punishment when the use of differential reinforcement of other behaviors or extinction is impossible or impractical. Teaching a new behavior to a seriously behaviorally disordered child is often a very slow process. The acquisition phase is usually long, and it can be several weeks until the new behavior has occurred frequently enough to be maintained in the classroom environment and therefore effectively compete with the maladaptive behavior. The maladaptive behavior may continue to be reinforced in the natural environment, leaving differential reinforcement impractical, if not impossible.

In addition, there are behaviors common to seriously behaviorally disordered children (e.g., climbing, rocking, hand flapping and twirling) that appear to be so self-reinforcing that extinction or the application of external reinforcement techniques to competing behavior is impractical or impossible. In such cases, punishment may be necessary to suppress the inappropriate or interfering behavior so that new behaviors may be introduced and reinforced.

Third, when a behavior might cause permanent damage to a child or to others if it were left unchecked, one might consider punishing. Head-banging and sticking objects in the eyes or ears are behaviors that should not go unchecked. Although it has been demonstrated that many of these behaviors will extinguish if not reinforced (Lovaas & Simmons, 1969) few classrooms are capable of insuring that no reinforcement will occur. Even if such a goal were possible, few teachers would be willing to run the risk. Similarly, if the child's behavior is potentially dangerous to others, it may be incumbent on the teacher to suppress these behaviors quickly.

Finally, punishment should also be considered when the child's behavior induces such a negative reaction in the child's caregivers that they either cannot or will not interact with the child. Some severely involved children have behaviors that are extremely noxious (e.g., feces-eating or ruminating) to people working with them. Even if it were possible to modify the behavior of all the caregivers in the child's environment so they would accept the child and deal only with the unpleasant behavior in question, valuable time may be slipping away. The child's education may be best facilitated if the negative behavior is punished so that teaching adaptive behaviors can be accelerated.

TYPES OF PUNISHMENT

Although the child's natural environment is filled with aversive consequences following his behaviors—pain resulting from touching a hot stove,

for example—the purpose of this article is to present procedures that have been demonstrated to have some *systematic effect* on the maladaptive behaviors of severely behaviorally disordered children and youth. These procedures are: verbal aversives, response cost, time-out, overcorrection and physical aversives.

Verbal Aversives

Verbal aversives or verbal reprimands include the use of terms such as "no," "sit down," "stop," "don't do that," that may (Moore & Baily, 1973) or may not (O'Leary, Kaufman, Kass & Drabman, 1970) be paired with more powerful aversive consequences. A verbal reprimand generally combines both the on-set of an aversive social stimulus (the particular verbal reprimand in question) and the withdrawal of a positive social stimulus (the reprimander's approval) following the child's maladaptive behavior.

Response Cost

This is an off-set punishment technique that involves the removal of a positive reinforcer following maladaptive or inappropriate behavior (Baer, 1961). By "response cost," we mean taking away some event, activity, item or privilege if the child misbehaves. The child's response will cost him; he has to pay for his behavior. Examples include losing a weekend pass for an institutionalized delinquent, not getting to ride a trike in the courtyard following a tantrum, being fined, losing recess, following a given behavior. Response cost is often used in token economy systems (Kazdin, 1977; Burchard, 1967) where children lose as well as gain points for their behavior.

Time-Out

This is a procedure by which access to the sources of reinforcement is removed for a particular time period contingent upon emission of a maladaptive response.

The range of time-out procedures, as identified by Gast and Nelson (1977), include (1) simply ignoring certain behaviors, (2) contingent observation where the child continues to observe but not participate in an activity, (3) removal of materials until the child can interact with them appropriately, (4) reducing room illumination contingent upon the response, (5) exclusion or short-term removal from the setting, and finally, (6) seclusion or long-term removal from the setting.

Overcorrection

This is a behavior reduction procedure developed by Foxx and Azrin (1972; 1973) and used most often with severely and profoundly handicapped clients. Overcorrection has two components: *restitutional overcorrection* and *positive practice overcorrection* (Sulzer-Azaroff & Mayer, 1977). Restitutional overcorrection is designed to overcorrect the environmental effects of an inappropriate act where the individual must restore the environment to a state considerably better than before the act. For example, a client in an institution who threw food would have to clean up not only his

own mess, but the whole cafeteria as well. *Positive practice overcorrection* involves repeated practice of an appropriate behavior in lieu of the inappropriate behavior. For example, a young autistic child emitting self-stimulatory behavior may be forced to keep his hands folded on a table for five minutes after each self-stimulation.

Physical Aversives

The direct use of physical or painful aversives to suppress maladaptive behavior is probably the most controversial of the punishment techniques. Examples include contingent electric shock for self-destructive behaviors like head-banging (Lovaas & Simmons, 1969), ruminating (Cunningham & Linscheid, 1976), chronic vomiting (Kohlenberg, 1970), climbing (Risley, 1968); aversive tickling contingent upon head-banging (Green & Hoats, 1971); restraint removal contingent upon appropriate toileting (Giles & Wolf, 1966); or noxious loud tones following wrong answers on a learning task (Schlichter & Ratliff, 1971). Physical aversives are what many think of when they discuss punishment of seriously behaviorally disordered children. However, the whole range of aversives mentioned must be kept in mind when punishment is evaluated as a treatment choice.

LIMITATIONS TO PUNISHMENT

Having defined punishment and developed a set of justifications for its judicious use, we will present some serious limitations or cautions to the systematic use of punishment as a treatment procedure with seriously behaviorally disordered children. These limitations, either alone or in combination, should be weighed prior to instigating punishment procedures to change children's behavior.

1. **Punishment suppresses behavior.** This is what punishment is supposed to do; however, it may suppress the behavior in all situations when suppression is desired only in a specified setting. One may suppress certain sexual behaviors, e.g., masturbation, in a young child that remain suppressed past a time in the child's or young adult's development when these behaviors would be considered more appropriate. Another problem might be the suppression of behaviors related to the one punished. Verbal aversives following each inappropriate vocalization of an autistic preschooler may suppress appropriate vocalizations as well. Thus, punishment may lead to general response inhibition if the aversives are frequent and powerful.

2. **Punishment may elicit avoidance and escape behavior.** The child may learn to avoid or escape from important sources of socialization and education, namely his parents and teachers, if they are also the sources of unpleasant stimuli. Probably the most effective teaching tool that a parent or teacher has is his or her ability to socially reinforce children for their appropriate behavior. Praise, attention and feedback are so powerful in teaching children that if parents and teachers dispense intense and frequent aversive consequences, the child may not be able to identify the adult as positive or potentially positive. The child may not learn appropriate behaviors but simply how to avoid or get away from the punisher.

3. Punishment may elicit emotional behavior. If the aversives are strong enough, the child may emit anxiety and fear responses that are counterproductive to learning. Somatic disorders—sweating, stomach pains, vomiting, etc.—may occur in the presence of certain aversive stimuli or conditioned aversives. For example, Tony, an 8-year-old emotionally disturbed child in a psychiatric treatment facility, cried, shook and often became short of breath following contingent aversives for his maladaptive behaviors on the ward and in the classroom.

4. Punishment may only effect the child's behavior in specific situations and then only temporarily. Punished behavior may reappear in the absence of the punisher; the child may learn to discriminate those settings or those people where his behavior may be punished and thus only emit the behavior in "safe" situations. Especially in the case of mild aversives like verbal reprimands or time-out, punishment may lose its effectiveness over time. The child adapts to the punishment, and often, more and more powerful aversives are called for to suppress the behavior in question.

5. Punishment alone does not teach a child appropriate behaviors. The use of punishment leaves the development of desirable behavior to chance. Most people who advocate punishment procedures for suppressing the maladaptive behaviors of severely behaviorally disordered children also advocate positive reinforcement procedures to enhance or increase the adaptive behaviors of these children. However, this is not always the case; witness the number of regular classroom teachers, parents and even many special education teachers who attempt to teach children by punishing their bad behavior and forgetting to reinforce their good behavior.

6. Related to the fact that punishment does not teach appropriate behavior, punishment does not eliminate the reinforcement the child may continue to receive from the performance of certain maladaptive behaviors. Because punishment occurs after the inappropriate behaviors, the reinforcement inherent in the behavior is already experienced. For example, Sam, a child who used his fingernails to incessantly scratch everything in his environment—blackboards, clothing, windowpanes, etc.—received his reinforcement from the behavior before the aversive stimuli (VIZ., a sharp slap on the back of the hand) was delivered.

7. Punishment may become very reinforcing to the punisher and thus punishment may increase markedly. Punishment is often effective in very quickly suppressing some behavior that one does not like. If the aversive is sufficiently intense, the behavior will be suppressed. It's easy. It's fast. It can be very pleasant to the punisher to have that screaming behavior decrease, the out-of-seat behavior controlled, or the self-stims brought under control. If, by definition, the punisher's behavior—delivering a shock, a verbal reprimand, a squirt of lemon juice—stops something that is unpleasant to the punisher, namely the child's maladaptive behavior, then the punisher is negatively reinforced and is thus more likely to do that behavior—to punish—again. It's a vicious cycle. We've observed this phenomena in many settings—in classrooms and clinics for seriously behaviorally disordered children—and in our own behavior. Delivering punishment can be very reinforcing.

8. Punishment provides an aggressive model for the child. The person delivering the aversive stimuli, the punisher, may serve as a model for undesirable behaviors (physical aversives: hit to get what you want; verbal aversives: yell to get what you want). Punishment gives the child a *power* model—those with strength and power punish and can control others with their power. They may learn that in order to affect other's behaviors, punishment is the procedure of choice. It's easy, and, after all, reinforcement is often a more difficult procedure for effecting change.

9. Punishment may result in aggressive reactions by the child who is punished. The child may respond to punishment by attacking the punisher or someone else. For example, a punished child may bite his parent, or a student may attack his teacher after being deprived of some positive event. If the child lacks the power to attack the one who punished him, he may attack someone weaker. Many younger brothers and sisters bear the brunt of their older siblings' reactions to being punished by a parent.

10. Punishment may spill over to effect peer's behavior. The effects of vicarious punishment are frequently cited as a positive attribute of punishment. If all the children in the class observe one child receiving the punishment for a given response, then, it is supposed, the probability that they will emit similar responses is greatly diminished. This may be fine from an efficiency standpoint, but it is possible that some of the negative effects of punishment listed above—general response inhibition, avoidance and escape behaviors, emotional behaviors and aggression—may develop in peers as well.

CONCLUSION

The systematic, data-based use of punishment with seriously behaviorally disordered children is probably receiving more attention today than at any time in history. Of course there has been corporal punishment in schools, institutions and the home for years; the question is now: Is punishment effective, efficient and the treatment of choice to suppress various maladaptive behaviors of behaviorally disordered children? We have listed four areas where punishment may be considered appropriate: when differential reinforcement and extinction procedures are not feasible, when the inappropriate behaviors are so self-reinforcing that competing reinforcers are impossible to identify, when the behaviors in question are dangerous to the child or to others, and when the behaviors are so noxious as to decrease the child's potential interaction with his caregivers.

Reinforcement procedures are the preferred method of changing behavior. Encouraging and reinforcing acceptable behavior is often hard, demanding, frustrating work. It is much easier to punish the bad behavior and go on about your business, and that's unfortunate. Punishment should be a last resort to change behavior. This is true because the effects of punishment may well reach further than thought or desired.

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CONTINGENT IMITATION AS A TEACHING AND MANAGEMENT STRATEGY FOR CHILDREN WITH SEVERE BEHAVIOR DISORDERS*

James M. Kauffman

In reviewing the literature on the uses of modeling with exceptional children (Cullinan, Kauffman, & LaFleur, 1975), one cannot help being impressed by the one-sidedness of the literature. That is, although many studies showing how observers are influenced by watching models can be found, it is only very recently that there has been any research whatsoever on how models are influenced by being imitated. Yet it is obvious that imitation always involves at least two people, that modeling and imitating are very common, natural dyadic interactions, and that either the model or the imitator may be the target of a strategy of social influence. Since Miller and Morris published an initial study in 1974, there has been an increasing interest in the effects of being imitated. However, the literature on this topic is not yet extensive, and most of the work has been with normal children.

Perhaps some comments on another (not entirely separate) area of research will help to clarify one of the reasons underlying a growing interest in the effects of being imitated. As Bell and Harper (1977) have recently pointed out, there has historically been a bias toward considering parents' influence on their children to the exclusion of considering children's effects on their parents. Yet research of parent-child relations that considers only parental effects on children has not been very productive. Recent research in which a unidirectional model has been given up in favor of an interactional one—a model that includes child effects on adults—has been much more successful in explaining the outcome of child rearing practices. It is now recognized that the effects of children on adults is a historically neglected but very important research topic in its own right. Perhaps there will be, over the next several years, an analogous recognition of the fact that being imitated is an important but heretofore ignored topic for research related to behavior change processes.

The idea that being imitated may have a considerable influence on a model's behavior is derived from at least three sources. First, everyday observation shows that being imitated is a common experience. Imitating

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someone else is frequently used intuitively by parents, teachers and peers to influence behavioral targets. To be imitated may be either the ultimate compliment or the ultimate put-down. Second, there are anecdotal reports in the literature indicating the value of imitating children in certain teaching situations. For example, Van Riper (1972) describes the value of imitating young children with delayed speech, and DesLauriers and Carlson (1969) indicate that they found it useful to imitate the stereotyped behavior of an autistic child during the early stages of training. Third, there is the theory advanced by Piaget (1962) that before a child learns to imitate he is imitated by his parents. Piaget's observations provide the basis for the suggestion in some language training programs that imitating the severely handicapped child may be important in the early stages of imitation training (Bricker & Bricker, 1976).

In many ways, being imitated is like other common social consequences (e.g., verbal praise or criticism) that have been used intuitively for many hundreds of years but have been carefuly researched only during the past couple of decades. It seems timely now to research how this particular social consequence—being imitated—can be used to therapeutic advantage. Very probably, the answers to how contingent imitation can be usefully employed will be fairly complex, for it is apparent that being imitated is a social consequence that can vary considerably in its meaning and salience. What it will mean and how it will function will depend on at least the following considerations:

1. Who is being imitated by whom (i.e., the relative social status and characteristics of the model and the imitator)
2. What is being imitated (i.e., the topographical and functional aspects of the response)
3. How closely the imitator matches the model's response (i.e., the degree of topographical similarity)
4. The social context in which imitation occurs (e.g., whether it occurs in a group or one-to-one setting)
5. The frequency and salience of the imitation
6. Other cues or consequences accompanying the imitation (e.g., praise, criticism)

At this point it is possible to pose three major questions for research:

1. How can imitation be used as a reinforcing or punishing consequence? As already indicated, it is reasonable to believe that contingent imitation, like other "natural" social consequences, can be harnessed for therapeutic benefit. It would be useful to know the circumstances if any, under which contingent imitation is particularly useful and the circumstances under which it will fail. Researchers would like to know how to maximize its effects when it is the consequence of choice.
2. How can imitation of the child be used to induce reciprocal imitation? In special education, researchers are constantly seeking effective means of inducing imitation of appropriate models. Re-

ciprocal imitation appears to be involved frequently in the mutual exchange of reinforcement referred to as "social reciprocity." Perhaps imitating the child is the most efficient way to begin a reciprocal, imitative chain of social behavior.

3. Does imitating the child during imitation training facilitate the child's acquisition of an imitative repertoire? In the usual imitation training paradigm, the trainer presents a model, prompts the child if necessary, and reinforces imitative responses or approximations with social praise or food. Piaget's work suggests that imitation learning may be speeded up, during imitation training, if the trainer imitates the child. If one was to find that imitating the child really does speed up imitation learning more than other tactics one might use, then one would have found an important key to working with many severely disturbed and retarded children, because the importance of imitation learning for the progress of such children is well known.

A note of caution is in order here. Certainly, it is a truism that being imitated can be reinforcing or punishing, but exactly how being imitated comes to serve as a reinforcing or punishing consequence and its usefulness in therapeutic endeavors have not been well documented yet. That imitating children on an experimental task in a laboratory situation induces their reciprocal imitation has been pretty well demonstrated with both normal and severely retarded children, but the extent to which reciprocal imitation can be induced by imitating children under more natural circumstances is not known. About all one can find to support the idea of imitating children during imitation training are Piagetian observations and theory, plus nonexperimental case reports; there are few experimental data (Kauffman, Snell, & Hallahan, 1976; Welch, 1977). One must conclude at this point, therefore, that while imitating children shows some promise as an intervention strategy, a lot more data will be required to draw any firm conclusions.

With these considerations in mind, brief reports of the available data will be presented. Only studies relevant to our first two research questions will be reviewed. The third question regarding imitating children during imitation training presents the most difficult methodological problems, and there is very little relevant information (Kauffman, Snell, & Hallahan, 1976, Welch, 1977). Some of the data presented has to do with retarded children. These data are relevant to working with severely disturbed children because, as has often been pointed out, it is often difficult or impossible to make clear distinctions between disturbed and retarded children (Balthazar & Stevens, 1975; Hallahan & Kauffman, 1976, 1977, 1978; Kauffman, 1977), and the interventions found successful with one group are often equally effective with the other.

CONTINGENT IMITATION AS AN AVERSIVE CONSEQUENCE

The first attempts to use contingent imitation as a decelerating consequence for undesirable behavior met with mixed success and failure. The first experimental case study (Kauffman, LaFleur, Hallahan, & Chanes, 1975, Case 1) dealt with a 7-year-old trainable mentally retarded girl who

was a very sloppy eater. Demonstrating appropriate eating behavior and reinforcing neat eating did not resolve the problem. The major problem appeared to be one of excessive rate—when she slowed down, her neatness improved markedly. The first procedure tried contingent verbal reprimands, that reduced her rate and improved her neatness somewhat, but did not bring a satisfactory result. However, when an adult sat across the table and imitated her eating behavior (matching her spoonful-for-spoonful and spill-for-spill, with some exaggeration of the sloppiness), she improved dramatically. (Whereas she slopped her way through three or four cups of soup at lunch during baseline, most of it going on her clothing or the table or floor, she ingested about a cup at lunch during imitation phases of the study.)

The second case study (Kauffman, et al., 1975, Case 2) was not so successful. When the teacher imitated a 9-year-old trainable mentally retarded girl's animal-like yelps during communication training sessions, her yelping increased dramatically. In this case, even though the girl held her hands over her ears and acted as if the teacher's imitative yelping were aversive, the teacher's imitation of her clearly served to increase yelping. It is possible that contingent imitation of inappropriate verbalization during communication training (which included calls for appropriate vocal imitation) was, in the first place, a procedure very likely to fail because of the child's likely confusion about what she should imitate.

Another case study (Kauffman, Hallahan, & Ianna, 1977), dealt with a 12-year-old trainable retarded boy who had a habit of sticking his tongue far out of his mouth, especially when he was concentrating on something like seatwork. Reinforcing him for keeping his tongue in his mouth and giving him verbal reminders did not help much. However, having the teacher sit across the table and imitate his tongue protrusions drastically reduced the target behavior. When the teacher imitated, she grasped him by the cheeks to insure that he would not look away. Later, she was able to maintain the suppression of his tongue protrusions simply by tapping him on the chin if he stuck his tongue out, i.e., a faded cue was sufficient to maintain improvement. Unfortunately, the design of the study leaves open the possibility that grasping the boy by the cheeks without imitating him might have worked just as well as the procedure which included imitation.

J. S. Birnbrauer (with whom I am currently working as coinvestigator on a field-initiated grant supported by the Bureau of Education for the Handicapped) recently conducted a study at DeJarnette Center for Human Development in Staunton, Va., in which he worked with a group of severely disturbed children. The target child was a 5 year old girl who sucked her thumb in class. The other children in the class were five boys ranging from 5 to 10 years of age, also severely disturbed. The target child's thumbsucking and attention to the teacher or other appropriate stimuli were recorded, as well as the thumbsucking and attention of the other class members (one of whom was also a thumbsucker). Birnbrauer found that when the teacher looked at the target child and imitatively sucked her own thumb contingent on the girl's thumbsucking, the results were not encouraging: the thumbsucking of the target child did not decline, but the attention to task of all the children in the class declined and the thumbsucking of nontarget children increased. Clearly, the teacher was better

off to ignore thumbsucking than to imitate it in this situation. Contingent imitation of inappropriate behavior in a group of highly aggressive, noncompliant children who are quick to pick up negative social cues may well be a highly inappropriate intervention.

Another study still being conducted by Birnbrauer involves a severely disturbed girl of 13. This institutionalized, moderately retarded girl exhibits several undesirable behaviors, including screaming, slapping the teacher, throwing things and pulling her tongue with her fingers. Her behavior is being recorded during training sessions in which she is being trained to follow commands to perform motor responses or say words. There are many details of the training and research design not reported here, but the following gives the gist of the experimental procedures and results. The target response was the peculiar self stimulation of tongue pulling. One of the research questions was whether any novel consequence might work just as well as contingent imitation. Therefore, the first intervention consisted of having the trainer perform a novel motor behavior (rubbing her shoulder) contingent on the girl's tongue pulling. Tongue pulling was not affected by this consequence. The next question was whether contingent imitation would decelerate the target response; it did not make an appreciable change. It seems reasonable to believe that imitation may derive its effectiveness as an aversive consequence from its association with other aversive events. That is, it is probable that being imitated for undesirable behavior becomes a secondary or conditioned aversive stimulus. Therefore, in the next phase of the study the trainer applied a brief time out (10 seconds during which teaching materials, reinforcers and attention were removed) after imitating tongue pulling for one or two seconds. During this imitation plus time-out phase, there was a marked decline in tongue pulling. Subsequently, imitation alone maintained tongue pulling at a low rate, suggesting that imitation indeed became a conditioned aversive stimulus. In the next phase of the study a different trainer—one who had never administered time-out to the subject—conducted the training sessions and, using contingent imitation alone, maintained the same low rate of tongue pulling as the first trainer. This seems to indicate generalization across trainers. The rest of the study to date is complicated by the reappearance of tongue pulling, the failure of imitation alone to decelerate it, and the appearance of new self-stimulation responses (nose flicking, head slapping and ear flicking), only one of which (nose flicking) appears to be responsive to imitation. The data are not all in yet, but at this point it seems likely that contingent imitation does become conditioned to other aversive events and, like other mild social punishment (e.g., reprimands), is likely to lose its effectiveness over many trials in which it is not paired with other aversive events. Once it has become a conditioned aversive event it may be a particularly efficient strategy for certain responses (e.g., nose flicking) depending on their topography and frequency.

IMITATING CHILDREN TO INDUCE RECIPROCAL IMITATION

There is now substantial literature showing that imitating normal children tends to induce their reciprocal imitation of the imitating adult (e.g., Fouts, Waldner, & Watson, 1976; Kauffman, Kneedler, Gamache, Hallahan, &

Ball, 1977; Kauffman, Gordon, & Baker, in press; Kneedler, 1975; McKee, 1977; Parton & Priefert, 1975; Thelen, Dollinger, & Roberts, 1975; Thelen & Kirkland, 1976; Thelen, Kirkland, Dollinger, & Paul, 1977). The same phenomenon—increased imitativeness in children who have been imitated—has been found to occur in institutionalized mentally retarded children (Hallahan, Kauffman, Kneedler, Snell, & Richards, 1977). Currently there are attempts to extend this research to include institutionalized emotionally disturbed children.

The research strategy, which has been evolving over several months of experimenting and is still changing, can be described in simplified form as follows. A child and an adult are brought into the experimental room and given identical sets of toys with which to play. In some play sessions the adult imitates what the child does with the toys; in other sessions the adult is counter-imitative, doing the opposite or something quite different from what the child does; and in still other sessions the adult is simply nonreactive to the child's play. By recording which toys the child selects and how he behaves during these play sessions, it may be possible to find out what effect, if any, imitation (as opposed to counter-imitation or nonreaction) may have. Too, it would be of interest to know whether or not being imitated during the play sessions makes the child more imitative of his adult playmate on another task. Therefore, probes are interspersed in the play sessions. These probes give the child a chance to imitate the adult's verbal, motor and color choice behavior in feeding plastic "cookies" to a "cookie monster." (For description of the cookie monster apparatus see Hallahan et al., 1977; Kauffman, Kneedler, Gamache, Hallahan, & Ball, 1977.) For example, the adult might pick up a red cookie, sniff it, say "this cookie smells just right," and then slip it in the monster's mouth, or choose a yellow cookie, salute the monster while saying, "Yes sir, cookie monster, here's your cookie," and pop the cookie in the monster's mouth. After the adult feeds the monster each cookie, the child is given a turn. A probe consists of several trials in which the adult goes first and the child has a chance to imitate. By comparing the child's imitativeness on the probes following different play sessions, one can observe the effects of being imitated during play on reciprocal imitation.

We are still attempting to work out procedural and design problems, and we don't have many data yet. The data so far do *not* unequivocally indicate that being imitated is reinforcing and tends to induce reciprocal imitation for disturbed children. It is not possible to tell at this point the extent to which the data reflect limitations of the research strategy.

SUMMARY AND CONCLUSIONS

Being imitated is a naturally occurring social consequence that may have a powerful influence on one's behavior. However, it is an aspect of modeling and imitation that, until very recently, has been totally neglected. Research data available so far suggest that imitating children might be particularly useful in some cases as an accelerating or decelerating consequence for particular responses, as a technique for inducing reciprocal imitation, or as a way of accelerating the acquisition of imitation learning. Investigations with handicapped children are only in the beginning stages, and much work remains to be done before any firm conclusions can be drawn.

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THE RESOURCE ROOM: A MODEL FOR INCREASING ITS EFFECTIVENESS

Jane E. McGlothlin and Mary K. Warner

The resource room model is now frequently employed by public schools attempting to provide least restrictive and appropriate special education programs. In addition to providing a format for considering the advantages and disadvantages inherent in the model, this paper will present one program's methods for overcoming these disadvantages.

The program discussed here is the psychological services program for the primary grades of a public elementary school, that includes the services for 10 regular classrooms, one self-contained special day class for educationally handicapped students and one resource room for learning disabled students.

While attention within the field of special education has been given to the resource room model recently, the concept is not new. Resource rooms were used prior to 1920 for the visually handicapped (Frampton & Gall, 1955). They were designed then, as now, to provide special help for exceptional children without exposing them to the stigma of labeling and full-time segregation from their peers.

Despite early resource rooms, preference was given to the special day class model for behavior disordered children until recently. When Dunn (1968) and others began to urge provision of alternatives to the self-contained special class, interest was revived in the resource room model as a tool in the mainstreaming process. The Education for All Handicapped Children Act, in mandating the provision of a free, appropriate and least restrictive placement for all children, implies a range of special education services. The resource room model is one alternative for the provision of these services.

Hammill and Wiederholt (1972) describe two types of resource rooms. First, they discuss the categorical resource room designed to serve those children within a single disability category. Hammill and Wiederholt suggest this type only for visually and auditorially impaired children, those with severe speech problems, and some nonreaders.

The second and less restrictive type of resource room is noncategorical. Any child having academic, adjustment or behavior problems can be helped for as much as half of each day without becoming a member of a diagnostic category.

In either type of room, the resource teacher would spend about 80 percent of his/her time giving direct help to children and the remainder of the

time providing indirect help in the form of assessment, consultative, programming or parent counseling services.

There are many advantages to the resource room model. First, there is research that, despite methodological flaws, indicates the efficacy of this approach with mildly retarded children (Jenkins & Mayhall, 1976; Walker, 1974), with learning disabled children (Sabatino, 1970), and with emotionally disturbed or behavior disordered children (Galvin, Quay, & Werry, 1971).

A second advantage of the resource room model is that it offers children special help without labeling and segregating them. Because children can be helped as soon as a problem is identified, some serious problems can be prevented. This is especially important in the area of behavior disorders. Educationally relevant help is available to the regular classroom teacher at his/her own school. Finally, the resource room model is a cost effective approach. More children can be served by a resource room than by a self-contained class.

Despite these advantages, there are problems inherent in the resource room model. A major problem is the difficulty often faced by the resource room teacher in establishing productive working relationships with the regular education staff. Many regular classroom teachers express feelings that they can't or don't want to accept responsibility for behavior disordered or other exceptional children in their classrooms. These children —and even the resource room teachers—are sometimes "written off."

The resource room model has a heavy dependence on the establishment of adequate communication between specialists or resource teachers and regular classroom teachers. This dependence is noted in the literature by authors stressing the need for detailed and continuing communication if changes made in the resource rooms are to be maintained in the regular classroom environment. (Shotel, Iano, & McGettigan, 1972; Glavin, 1973). The necessity of adequate communication implies two areas of need. One need deals with the process of communication, and the other deals with communication content.

First, the adequacy of communication channels is crucial. If the established way of communicating is inadequate, regular classroom teachers will receive insufficient help, become frustrated, and be unwilling to work with children with problems. Second, a content format for discussing children's behaviors is needed. Without this, even adequate communication channels will be ineffective.

A model used to analyze the process of communication in the authors' program was diagrammed by Tharp and Wetzel (1969) in their discussion of the modification of problem behaviors in the natural environment. This triadic intervention model is shown in Figure 1.

In this model the specialist works in a consultant role with a mediator, who works with target clients. Arrows in the model represent sources of reinforcement for each component.

In a public elementary school the consultant role would typically be filled by the school psychologist and/or the resource room teacher. The regular classroom teachers would serve as mediators in direct contact with target children.

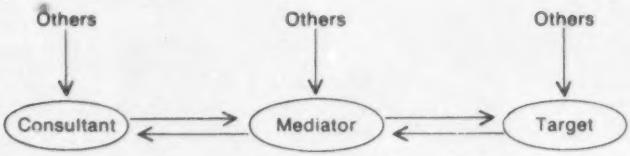

Figure 1. The triad model.

The second area of need focuses on the content format for discussing children's problems. The format already in use by classroom teachers in this program was based on a model presented by Hewett (1968) and shown in Figure 2.

Hewett specifies three decision areas needing consideration in an educational intervention: 1) task, 2) structure, and 3) motivation. For the purposes of this discussion, task decisions include consideration of a child's level and pace. Structure decisions concern methods of task presentation, arrangement of the environment, and learning style. Motivation decisions detail the appropriate level and scheduling of reinforcement.

ANALYSIS OF THE EXISTING PROGRAM

In the program under discussion, communication within the psychological services program was judged to be inadequate by the staff. When the triadic intervention model was applied to the existing program, it was seen that the school psychologist functioned normally in the consultant role, and the regular classroom teachers were the mediators. The resource and special class teachers frequently offered stop-gap help on an informal or crisis intervention basis as shown in Figure 3.

The teachers expressed the feeling that they were getting very delayed and insufficient classroom-relevant help. Input was frequently in the form of psychological testing for the referred child, and test interpretation for the teacher. The teachers stated that referrals too frequently resulted in increased withdrawal of the child from the regular classroom for special services. Because the teachers were frustrated in their attempts both to help target children and to get assistance themselves, reinforcements were insufficient at each point of interaction in the model. The school psychologist expressed frustration at spending the majority of her time testing children from a backlogged referral list.

Figure 2. The learning triangle.

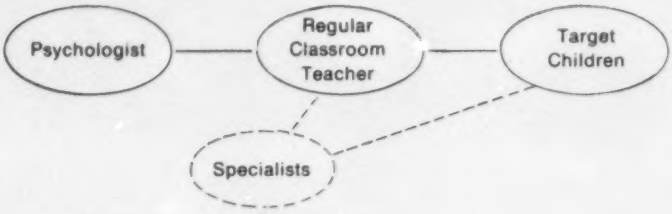

Figure 3. The triad model applied.

In considering the content format being used to analyze children's problems, it was discovered that an adaptation of the Hewett model was being used in classroom planning but was not being used in the formal process of assessing needs of children with problems.

STATEMENT OF NEEDS

Scrutiny of the psychological services program by the staff resulted in the statement of two needs. First, the need was expressed for establishing communication channels that would provide adequate support for regular classroom teachers. Adequate support was defined as classroom-relevant help occurring within 30 days of referral. Second, the need was expressed to format the analysis of a child's problem in such a way that classroom-relevant data was collected and shared with teachers.

CREATION OF THE SCHOOL REFERRAL COMMITTEE

Each of the needs expressed implied changes in the psychological services program. The first step taken by the primary staff was to create a School Referral Committee (SRC) to handle all referrals to the psychological services program. The SRC was composed of staff members, including two regular classroom teachers, a special education teacher, the school psychologist, the principal and the referring teacher. Other specialists, classroom teachers and parents were invited to attend meetings as their input was needed.

The SRC was designed to fill the consultant role in the triadic intervention model. (See Figure 4.) It was hoped that, if classroom teachers could receive relevant help from other teachers and specialists, appropriate channels of reinforcement would be restored, and teachers would be effective mediators for target children.

Statement of goals

The goals of the SRC were: 1) to increase classroom teachers' level of involvement in all phases of the referral process, 2) to give children and teachers more immediate assistance, 3) to offer solution procedures relevant to the classroom program, 4) to provide modeling of assessment and intervention techniques for classroom teachers, and 5) to promote ongoing in-depth communication between regular classroom teachers and specialists.

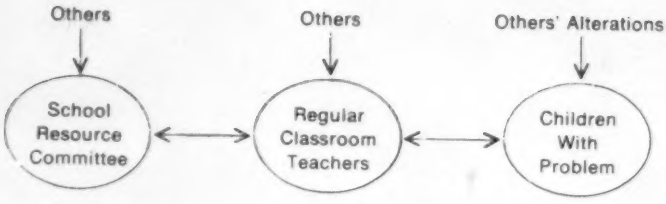

Figure 4. The triad model after program.

SCHOOL REFERRAL COMMITTEE PROCEDURES

The School Referral Committee met once every two weeks to discuss new referrals, hear progress reports and evaluate interventions. One member of the committee acted as chairperson, providing an agenda, listing referrals to be discussed at each meeting, and keeping records on each student referred. Each referral was carried through the following five phases, each of which is discussed in more detail below: 1) pinpointing of the problem, 2) situational analysis, 3) program specification, 4) intervention, and 5) evaluation.

Pinpointing the Problem

Classroom teachers seeking help with a particular child submitted to the chairman of the SRC a Request for Consultation. At the next SRC meeting the referring teacher was asked to describe the problem to the other committee members. Through this discussion the behaviors to be changed were pinpointed and prioritized.

Situational Analysis

At the end of the first meeting the committee members worked with the referring teacher to identify what kinds of situational analysis information were needed in order to develop an intervention appropriate for the pinpointed behaviors. This situational analysis lasted one month and involved a number of staff as data gatherers. Sources of information were any or all of the following: 1) teacher interviews with parents, other staff members or outside specialists, 2) classroom observations by teachers, aides or other committee members, 3) observation in a resource room by special education personnel, 4) standardized psychological testing, 5) an academic skills inventory administered by a teacher, 6) a learning style assessment completed by the referring teacher and 7) a reinforcement survey given the child's parents.

It should be noted that all three components of Hewett's intervention model were considered in the situational analysis. Also, standardized psychological testing, previously used as the major source of analysis data, became only one means of acquiring data for the development of a program.

Program Specification

Upon completion of the situational analysis, the committee again met with the referring teacher to discuss the information gathered, set goals for

the student, and specify a program to meet the goals. The program specification again included consideration of the three components in Hewett's model. The committee's priority was to specify a program to be implemented in the regular classroom; however, if the situational analysis indicated need for placement in a special program, the committee could decide to begin procedures for such placement.

Following program specification, the child and his/her parents were involved. The teacher and another member of the SRC met with the child and parents to explain the proposed program and obtain consent. The parents were included in the process in every appropriate way.

Intervention

The teacher had the opportunity to request modeling of any techniques specified in the program recommended by the SRC. The committee checked with the referring teacher at the next meeting following program specification to see whether adequate progress was being made. The program was altered at that time, if necessary, and a date set for the final evaluation.

Evaluation

The final step in the process was an evaluation of the intervention by the referring teacher. If the program goal had been met, a plan for maintenance of the behavior was designed. At this time new goals might be set for the student. If the goal for the student had not been met, the committee discussed the reasons for failure of the intervention and altered the program by recycling back to the point of failure.

Results

At the end of its first year the service provided by the SRC was evaluated by the primary grade staff, and the following results were noted:

1) More students were helped in one year by the SRC than had been helped under the previous referral process. Successful programs were developed for all 23 children referred. The writers' school was the only one out of 10 in its district that did not have a backlog of referrals for psychological services left over at the end of the school year.

2) The time between the Request for Consultation and the beginning of action on the referral was reduced significantly. Before the SRC was established, teachers often waited several months before the school psychologist was able to begin action on a referral. The SRC began action on a referral within two weeks of the request.

3) The teachers became more involved in all stages of the referral process. Teachers stated that, as a result of their increased involvement, they felt more skillfull in diagnosing and prescribing for students with special needs.

4) Teachers were given classroom-relevant and classroom-based solution procedures. Before the establishment of the SRC, the primary solution procedure was placement in a special program. If the student did not qualify for such a program, further assistance was limited.

FUTURE GOALS

During the first year of the program, the SRC served only students in the primary grades. A second-year goal is to expand the program to include all the students in the school. Another goal is to develop a file of sample materials for teachers to use in interventions. These materials could include examples of behavior contracts, reinforcement techniques and remedial academic materials. Third, parents will be included at an earlier point in the process. Their inclusion is designed to make them a more active part of the process of defining Individualized Educational Plans for their children.

SUMMARY

The resource room model is one program delivery alternative currently employed to provide special education services to behavior disordered and other exceptional children. The resource room appears to be a cost effective way of providing help to children and teachers with a minimum level of segregation for the children.

Inherent in the resource room model is a dependence upon the establishment of both an adequate process of communication between classroom teachers and specialists, and an appropriate content format for discussing children's problems. An analysis of the psychological services program of which the authors were a part revealed needs in both of these areas.

To improve both the content format and the process of communication, the staff created a School Referral Committee composed of teachers and specialists to process all referrals. The SRC assisted teachers in pinpointing problems, conducting situational analyses, specifying programs, intervening, and evaluating their interventions.

At the end of the SRC's first year, it was evaluated enthusiastically by teachers, and a longstanding backlog of referrals had been erased. Plans for the committee's second year include expansion of services beyond the primary grades, increased parental involvement, and establishment of an intervention resource file with sample materials from successful interventions.

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USE OF PRECISION PLANNING TECHNIQUES BY TEACHER TRAINEES WITH BEHAVIORALLY DISORDERED PUPILS

Mary M. Kerr and Phillip S. Strain

To date, efforts to utilize applied behavioral techniques with behaviorally disordered children have focused principally on the systematic regulation of reinforcement contingencies to manage preacademic and social responses (Allen, Hart, Buell, Harris, & Wolf, 1964; Koegel & Rincover, 1974; Strain, Shores, & Kerr, 1976; Strain & Timm, 1974). These studies have demonstrated repeatedly that appropriate preacademic and social responses can be accelerated and maintained with a wide variety of primary and secondary consequences. In contrast, very few attempts have been made to examine the functional effects of antecedent events (e.g., instructions, class size. modeling, planning, objectives) on behaviorally disordered children's appropriate classroom responses.

The present study represents an attempt to examine the effects of one potential set of controlling antecedent events, precision planning techniques, on the correct and incorrect responses of behaviorally disordered children on math and reading assignments. Precision planning techniques, as developed by Burney (1976), represent an elaboration of the precision teaching package designed by Lindsley (1970) and Young (1972). Specifically, the techniques used in this study include nine behavioral components:

1. Counting of the number of correct and incorrect responses.
2. Counting of correct and incorrect responses on repetitions.
3. Comparison of responses with those on previous worksheets.
4. Analysis of attack techniques used by each pupil on each stimulus item.
5. Timing of pupil's work to completion.
6. Notation of specific teaching techniques used.
7. Establishment of performance criteria objectives for each pupil.
8. Graphing of correct and incorrect response data.
9. Analysis of graphs for trends or relationships between correct and incorrect responses. Specific relationships defined include those indicating: a) problems of discrimination, b) reinforcement, and/or c) contingent control.

Previous research on teachers' use of precision planning techniques reveals equivocal results. Several studies have reported improvements in the behaviors of mentally retarded children when precision teaching tactics were utilized (Galloway & Galloway, 1971; Haring, 1971; Rickert & Morey, 1970; Starlin, 1971). However, none of these studies report data on the exact planning and teaching tactics that were employed. Burney (1976) was the first to attempt control over teachers' use of the nine specific planning techniques described above. This effort, again employing mentally retarded subjects, produced predictable changes in the math planning activities of two out of three teachers.

The purposes of this study were: a) to demonstrate experimental control over the nine precision planning behaviors across teacher trainees, academic areas of math and reading, and individual children; b) to examine the relationship between teacher trainees' increased use of precision planning tactics and their use of contingent praise statements; and c) to examine the functional effects of the total planning package on the math and reading performance of behaviorally disordered children.

METHODS

Setting

The investigation was conducted in three classrooms at Cavert School, a special education facility for children with learning and behavior disorders of the Metropolitan Nashville Public Schools, Nashville, Tennessee. Classroom sessions, each five and one half hours, were held five days a week. Classroom staff consisted of a classroom teacher, an aide and two teacher trainees. Data was collected during small group time, when pupils were instructed in math and oral reading.

Subjects

This research was conducted with teacher trainees working with behaviorally disordered pupils aged 10 to 12 years. In each of two classrooms, one trainee and two pupils participated; in a third classroom, one teacher trainee and one pupil participated.

Teacher trainees were selected on the basis of their having pupils who functioned at academic levels appropriate for the research task and upon recommendations by supervising teachers. All trainees were enrolled in the Field-Based Training Program, Department of Special Education, George Peabody College for Teachers. None of the trainees had previous direct teaching experience with behaviorally disordered pupils. Additionally, the trainees were naive to the specific planning tactics to be implemented in the study. Pupil appropriateness was determined by regularity of attendance and academic performance at least two years below expected grade level as assessed by normative testing. All pupils selected were males. In addition to their learning handicaps, all children selected had a history of frequent tantrums and aggressive behavior towards peers and adults.

Behavioral Measures

The data collected in this study was from three sources: interviews with trainees, pupils' worksheets, and observations of trainee-pupil interactions.

Trainee Interviews. Interviews with trainees were conducted daily with the purpose of identifying specific planning techniques employed by trainees. The interviews were highly structured to determine the use of nine specific planning techniques identified by Burney (1976).

Pupils' Worksheets. Pupil performance was measured by analysis of worksheets on a daily basis, by the researcher. Math worksheets consisted of 15 math problems taught by the teacher every day. Data consisted of each pupil's correct and incorrect response rates. Reading worksheets consisted of 21 sight words taken from the pupils' basal reading texts. Correct and incorrect response rate data were taken.

Trainee-Pupil Interaction. The third and final source of data was in the form of direct observation of teacher trainee-pupil interactions. Specifically, a frequency count of the contingent praise statements made by each trainee to her pupils was recorded. A contingent praise statement was defined for the purposes of this study as any teacher verbalizations emitted after a correct response by the pupil that indicate teacher approval and/or provide the pupil feedback on his performance (e.g., "Good", "That's right", "You're doing so well", "I like the way you're working so hard", etc.). Controlled use of such praise statements by the teacher trainee, as a possible direct result of using the planning techniques, was a major area of interest in this study.

Observational Procedures

Observation of teacher trainee planning behaviors, as mentioned previously, took place in the form of structured interviews. On a daily basis, the data collector conducted an interview with the trainee to determine which of the nine planning techniques the trainee used in planning the day's math and reading lessons. Separate interviews were conducted for each pupil and for each academic area. Each interview was supplemented by having the teacher trainee complete a detailed analysis of her planning activities, following the format of the trainee interviews.

Correct and incorrect response rates on pupil's worksheets in math and reading were recorded each day by a trained observer. These data were then graphed. A trend analysis was subsequently conducted on pupil correct and incorrect response rates.

Trainee-pupil interaction data were recorded daily by the same trained data collector during both the reading and math sessions. A cumulative record of the frequency of contingent praise statements made by the trainees was kept.

Intervention Procedures

Intervention procedures for this study consisted of intervention on teacher trainee planning behaviors and intervention on pupil performance in math

and reading sessions. The first intervention took place in the form of direct consultation. Two professional teacher training consultants worked jointly with each teacher trainee on the nine planning techniques. This consultation took place during the second intervention. The consultants spent an initial two-hour block of time with each trainee. These initial training sessions were conducted separately in order to prevent communication among teacher trainees concerning the planning procedures. Following this initial training session, each trainee met with the consultants on Monday and Friday of each week to insure a complete understanding of the planning technique.[1] The objective for this intervention procedure was to have all three teacher trainees using all nine planning techniques on a regular basis. Since the techniques provided the teacher trainees some form of data and/or data analysis of the pupil's performance on a daily basis, it was expected that the trainees' use of the planning techniques would lead to improved pupil performance.

Intervention on pupil's reading and math performance consisted of increased use of planning techniques by teacher trainees, and increased use of contingent praise statements by teacher trainees. It was anticipated that the rate of contingent praise statements delivered to pupils would increase as the trainees utilized the precision planning techniques.

Design

The study employed a multiple baseline design across subjects and academic areas. The two stages were:

Baseline. No special instructions were given to the teacher trainees. Pupils worked in each classroom on previously designated math and reading work daily, for 15 minutes each lesson. Observation and recording of trainee contingent praise statements, and trainee planning behaviors were conducted until a steady level was reached. In addition, correct and incorrect response rate data were recorded on pupils' performance in math and in reading.

Intervention. Teacher trainees were instructed in the use of the nine planning procedures. The purposes of this stage were to exhibit control of trainee planning behaviors across pupils and academic areas, and to increase and maintain at a high level the precision planning techniques used by trainees. Observation and recording of trainee contingent praise statements and trainee planning behaviors were conducted. Correct and error response data were taken on pupils' math and reading work.

RESULTS

Planning Data

The data presented in this section reflect the use of the nine planning techniques by teacher trainees.

Reliability was established by a two-part observational process. Each day, self reports on the use of planning techniques were submitted by the

[1] The resource text for this training was *Precision Teaching: A Course in Basic Procedures* by James R. Young (1972).

teacher trainees. Results of these self reports were confirmed by daily teacher trainee interviews with the investigator. Consensus between the self reports and interview ratings was maintained throughout all phases of the study.

Table 1 shows the actual number of planning techniques used for reading instruction by each teacher trainee throughout the study. Table 2 shows the actual number of planning techniques used for math instruction by each teacher trainee throughout the study. As can be seen from Tables 1 and 2, Teacher Trainee 1 exhibited a stable level of planning for both math and reading baseline conditions. Upon implementation of the instruction on the nine planning techniques, Teacher Trainee 1 began using all nine techniques with both pupils. She maintained this high level of planning throughout both academic interventions. Teacher Trainee 2 was also stable in her use of planning techniques during the baseline condition. Teacher Trainee 2, on intervention, began to use consistently more planning techniques than were used during the baseline phase. Teacher Trainee 3 also exhibited stable baseline levels of planning behavior for

TABLE 1

Number of Planning Techniques Used by Teacher Trainees With Each Pupil Across All Experimental Sessions for Reading Instruction

	Trainee 1		Trainee 2	Trainee 3	
Sessions	**Larry**	**Alfred**	**James**	**Dan**	**Sam**
1	1	1	3	3	3
2	1	1	3	3	3
3	4	4	3	3	3
4	4	4	3	3	0
5	4	4	3	3	0
6	4	4	2	1	1
7	4	4	2	1	1
8	1	4	6	1	1
9	1	4	5	1	1
10	1	9	8	1	1
11	9	9	8	1	1
12	9	9	7	1	1
13	9	9	7	1	1
14	9	9	7	7	7
15	9	9	6	7	7
16	9	9	7	7	7
17		9	7	7	7
18		9	9	7	7
19		9	9	7	7
20			9	7	7
21					8
22					8
23					8

Baseline: Larry sessions 1–10; Alfred sessions 1–9; James sessions 1–8; Dan sessions 1–6; Sam sessions 1–6

Intervention: Larry sessions 11–16; Alfred sessions 10–19; James sessions 9–20; Dan sessions 7–13; Sam sessions 7–23

TABLE 2

Number of Planning Techniques Used by Teacher Trainees With Each Pupil Across All Experimental Sessions for Math Instruction

	Trainee 1				Trainee 2				Trainee 3			
Sessions		**Larry**		**Alfred**		**James**		**Dan**		**Sam**	
1	Baseline	1	Baseline	0	Baseline	3	Baseline	0	Baseline	0
2		1		1		3		3		3
3		1		4		3		3		3
4		1		4		3		3		3
5		1		4		3		3		3
6		1		4		2		3		3
7	Intervention	9		4		2	Intervention	6	Intervention	6
8		9		4		2		7		7
9		9		4		2		7		7
10		9	Intervention	9		2		8		8
11		9		9		2		7		7
12		9		9		2		7		7
13		9		9		7		7		7
14		9		9		5		7		7
15		9		9		7		7		7
16		9		9		6		7		7
17		9		9		6		7		7
18				9		7		8		8
19						9		7		7
20						9		8		8
21										8
22										8

both pupils. Her use of planning techniques increased substantially during the intervention phases.

Contingent Praise Data

The data presented in this section reflect the use of contingent praise statements to pupils by teacher trainees.

Reliability checks were conducted 33 times throughout the study. Observational reliability was established by having multiple raters record the number of contingent praise statements emitted by the trainee during an instructional session. Reliability was computed by the following formula:

$$\frac{\text{Observer Agreements}}{\text{Observer Agreements} + \text{Observer Disagreements}} \times 100$$

Mean reliability for all trainees throughout the study was 88 percent. Mean agreements ranged from 60 to 100 percent.

Since the number of contingent praise statements emitted by trainees overlapped across experimental conditions, the Mann-Whitney U statistic

(Siegel, 1956) was computed to test for significance of differences in use of contingent praise statements between phases. For Teacher Trainee 1, a significant increase in contingent praise statements occurred between baseline and intervention phases with Larry in math ($U = 0$, $p < .001$) and with Alfred in math ($U = 0$, $p < .001$) and in reading ($U = 0$, $p < .001$). No significant differences occurred for Trainee 1 with Larry in reading ($U = 12$, NS).

For Teacher Trainee 2, a significant increase occurred between baseline and intervention phases with James in math ($U = 7$, $p < .002$). No significant differences occurred with James in reading ($U = 26$, NS).

For Teacher Trainee 3, a significant increase occurred between baseline and intervention phases with Sam in math ($U = 6$, $p < .002$) and in reading ($U = 26$, $p < .05$). Significant increases also occurred with Dan in math ($U = 4$, $p < .002$). No significant differences occurred in contingent praise statements to Dan in reading ($U = 71$, NS).

Pupil Performance Data

The data presented in this section reflect pupil performance during math and reading sessions.

Reliability checks were conducted during every session of the study. Observational reliability was established by having both the teacher trainee and a data collector record correct and error responses of each pupil during math and reading sessions. In addition, both the teacher trainee and the data collector recorded the time used by each pupil to complete the math and reading worksheets. Using the data provided by the trainee and the data collector, the investigator calculated reliability of correct and error rates for each pupil on a daily basis. Consensus between trainees and data collectors was maintained throughout all phases of the study.

In those cases where pupil performance data points overlapped baseline and intervention phases, a Mann-Whitney U statistic (Siegel, 1956) was computed to test for significance of difference between phases.

Pupils of Trainee 1. Performance data for Alfred and Larry, pupils instructed by Teacher Trainee 1, are presented in Figures 1 and 2, respectively. For Alfred, significant differences between phases occurred in math performance for both correct (no overlap) and incorrect responses ($U = 17$, $p < .05$). For Larry, significant differences occurred in correct ($U = 3$, $p < .001$) and in incorrect response rates ($U = 1$, $p < .001$) in math. Similar results were noted for reading performance. For Alfred, significant differences occurred in corrects (no overlap) and in errors ($U = 39$, $p < .05$). For Larry, significant differences occurred in correct ($U = 2$, $p < .001$) and in incorrect responses ($U = 5$, $p < .01$). For each of Trainee 1's students, correct responses increased and incorrect responses decreased during the intervention phase.

Pupil of Trainee 2. Performance data for James, the pupil instructed by Trainee 2, are presented in Figure 3. In reading, significant differences between baseline and intervention performance were noted for both correct ($U = 3$, $p < .001$) and incorrect responses ($U = 24$, $p < .05$). In math, significant differences occurred in correct responses ($U = 6$, $p < .001$).

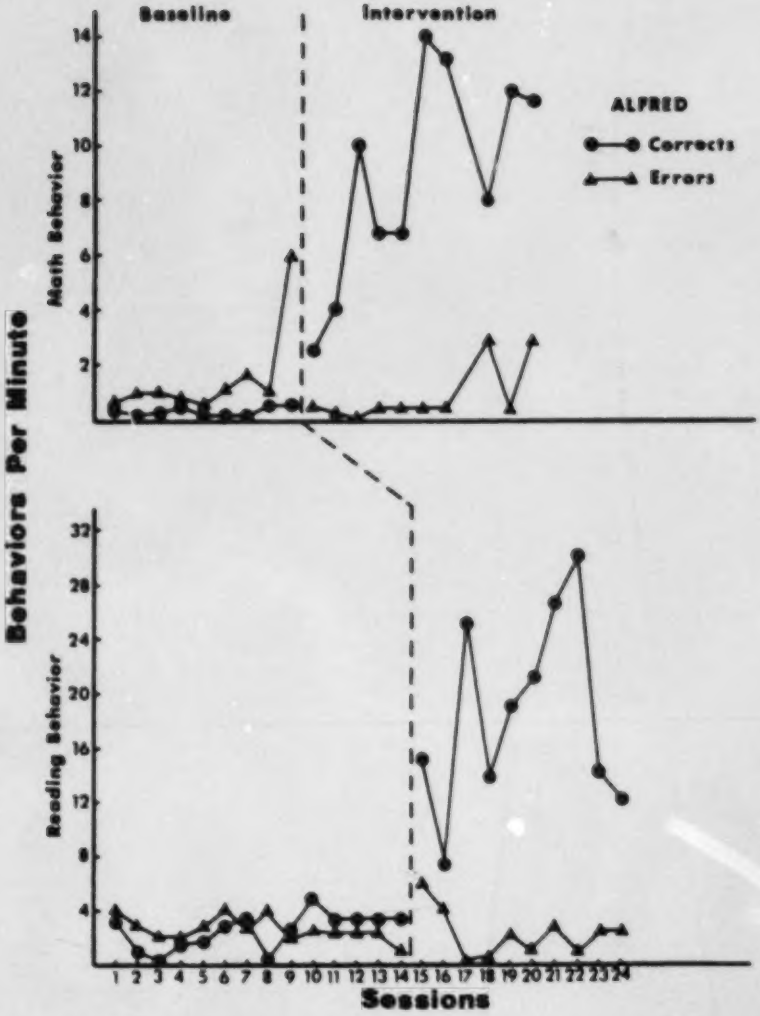

Figure 1. Correct and error rates for responses to math and reading worksheets for Alfred.

No significant difference occurred in incorrect responses (U = 33, NS). For James, all correct responses increased and incorrect responses decreased during intervention.

Pupils of Trainee 3. Performance data for Dan and Sam, pupils instructed by Teacher Trainee 3, are presented in Figures 4 and 5, respectively. For Dan, significant differences between phases occurred in math performance for both correct ($U = 8$, $p < .001$) and incorrect responses ($U = 14$, $p < .05$). For Sam, significant differences occurred in correct ($U = 14$, $p < .01$) and incorrect responses ($U = 14$, $p < .01$) in math. In reading, similar results were noted. For Dan, significant differences occurred in correct

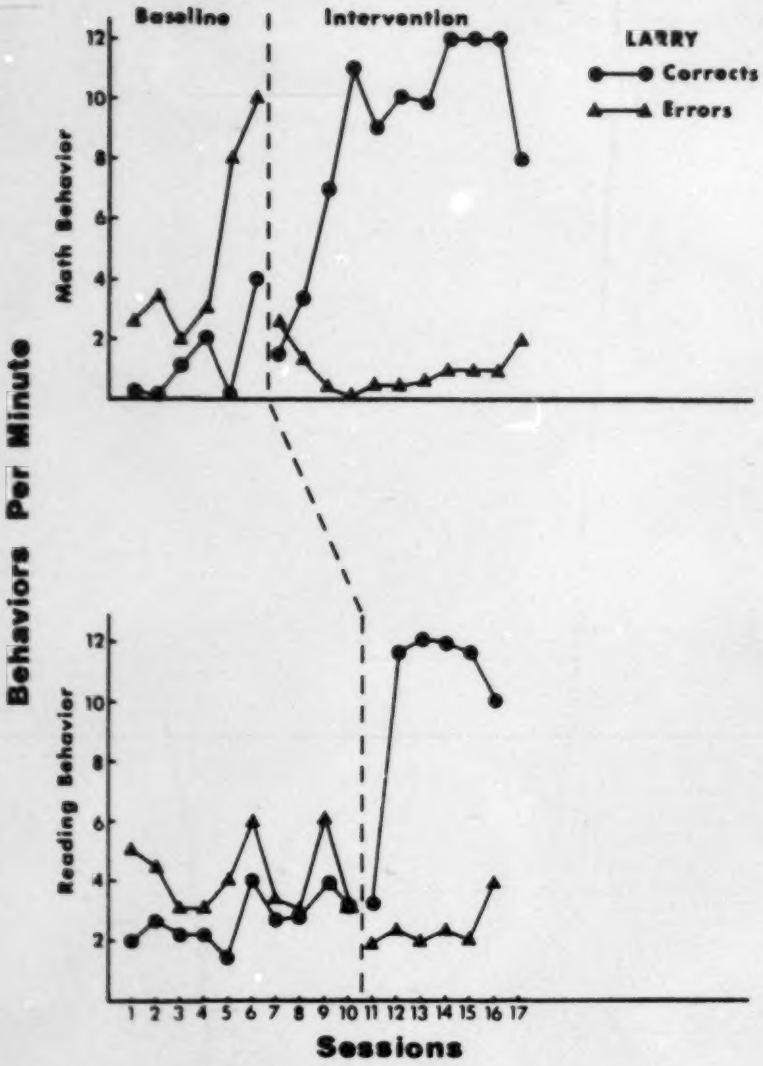

Figure 2. Correct and error rates for responses to math and reading worksheets for Larry.

(U = 10, $p < .01$) and in incorrect responses (no overlap). For Sam, significant differences in reading were noted in correct (U = 11, $p < .01$) and incorrect responses (no overlap). For both Dan and Sam, correct responses increased and incorrect responses decreased during the intervention condition.

DISCUSSION

The major findings of this study were: a) the intervention procedure on teacher trainees produced a dramatic and consistent increase in their

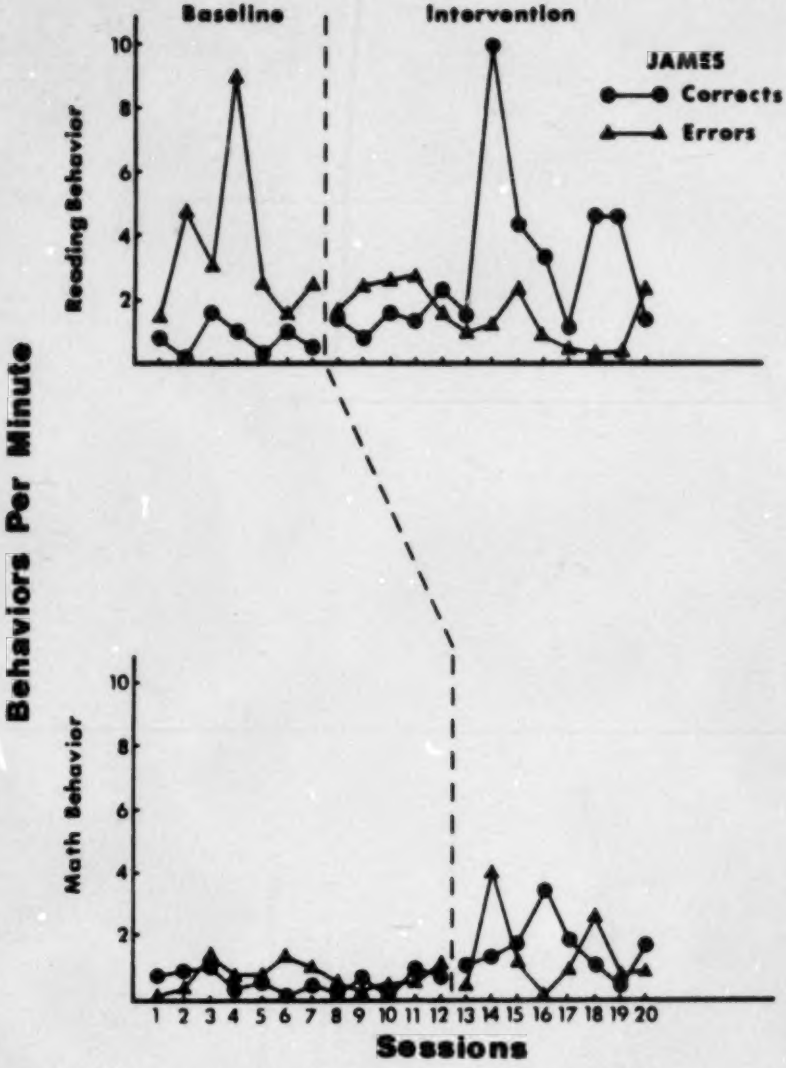

Figure 3. Correct and error rates for responses to math and reading worksheets for James.

use of the precision planning tactics; b) this increase in planning behaviors was demonstrated across all pupils involved and across the academic areas of math and reading; c) the use of contingent praise by teacher trainees increased concomitant with their increased level of planning; and d) pupil performance in all classrooms showed improvement upon implementation of the planning procedures by teacher trainees.

Those data regarding the control of teacher trainees' planning behaviors expands earlier research involving teachers of mentally retarded children

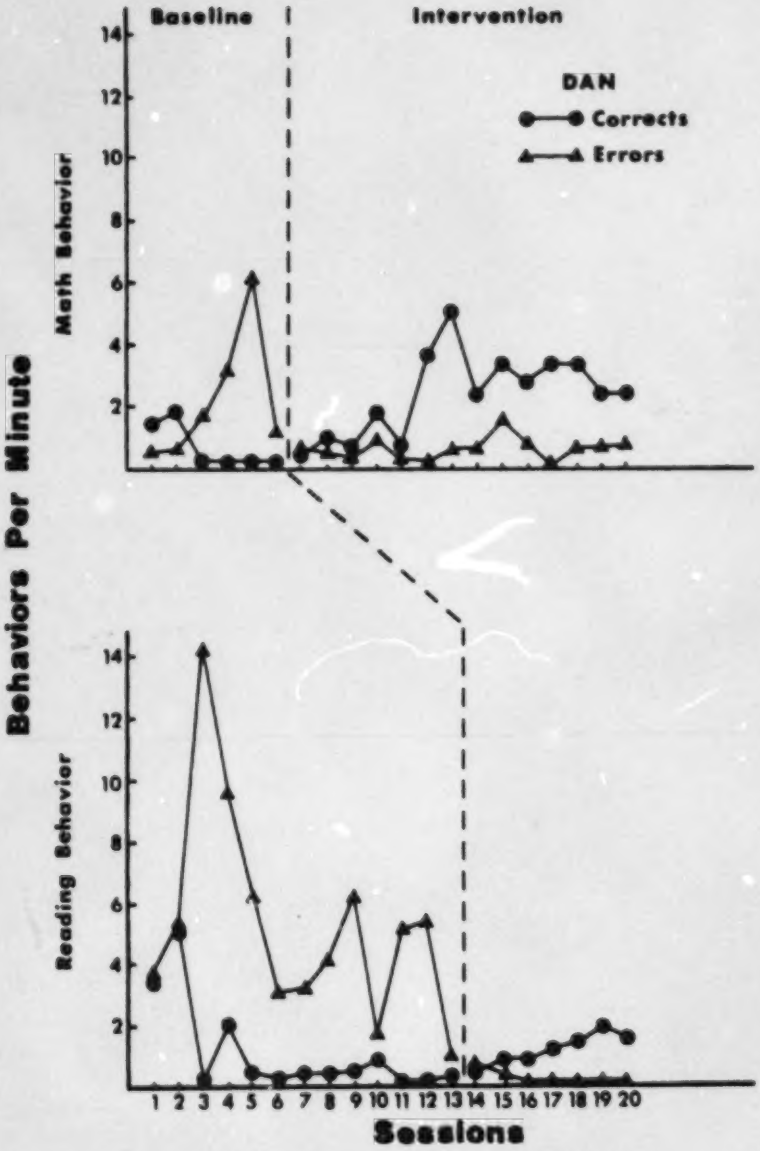

Figure 4. Correct and error rates for responses to math and reading worksheets for Dan.

(Burney, 1976; Haring, 1971). Moreover, the present data show that the planning techniques were implemented across both reading and math instruction on children with divergent baseline performance. A likely reason for the rapid increase and maintenance in planning behaviors is the immediate feedback the trainees received on improved pupil perform-

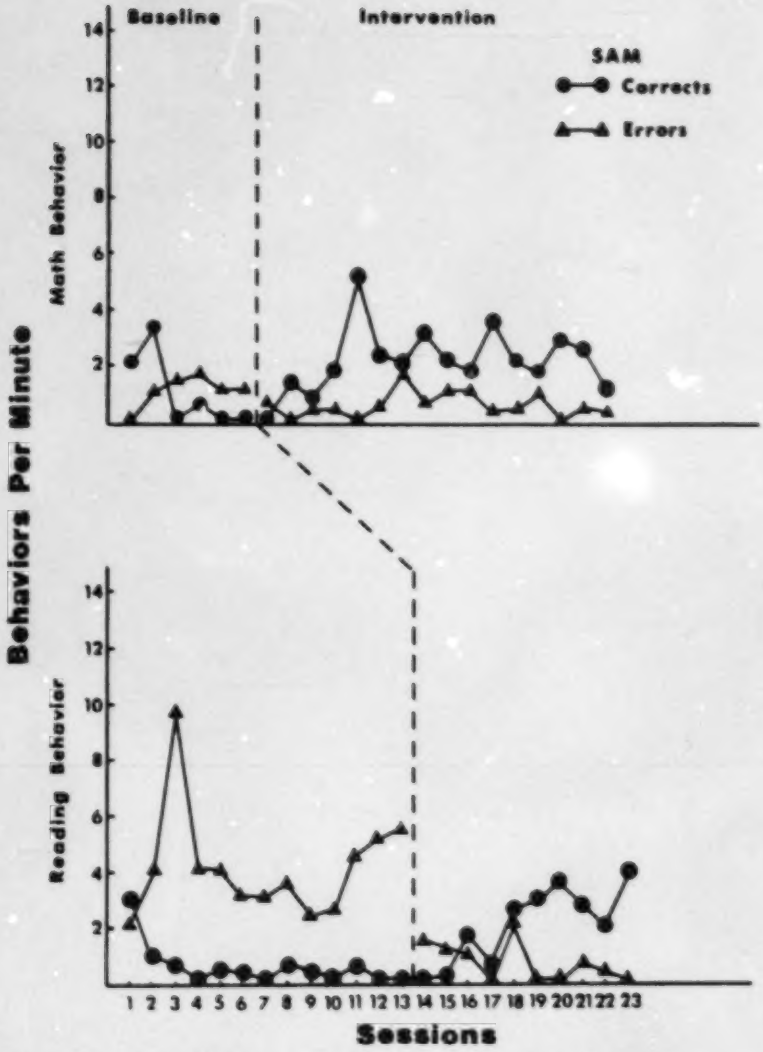

Figure 5. Correct and error rates for responses to math and reading worksheets for Sam.

ance. It is important to note that the first day of planning intervention resulted in an increase in all pupils' correct math or reading responses and a decrease in incorrect responses. Significantly, the only trainee to implement all nine techniques throughout intervention (Trainee 1) had those pupils who showed the greatest academic improvement (Alfred and Larry). Whereas previous research (Burney, 1976) focused on math instruction alone, the present study demonstrates the effects of the planning intervention across two academic areas, math and oral reading. It is possible then that these planning techniques may be applied successfully to other academic areas that can be measured discretely.

The trainees' general trend toward increased use of contingent praise concomitant with increased use of the planning tactics represents the development of what Shores, Cegelka, & Nelson (1973) designate as a critical teaching competency. It seems likely that as the trainees performed trend analyses on correct and incorrect responses, they in turn altered social reinforcement contingencies to alleviate problems of discrimination, reinforcement, or contingent control. On those instructional interactions in which contingent praise statements did not increase significantly over baseline levels, the trainees had selected some form of token reinforcement to consequate appropriate performance. Such interaction patterns occurred during reading instruction only. Anecdotal reports from all trainees indicated that they felt the delivery of tokens or points during reading was less obtrusive and more likely to lead to uninterrupted reading than social praise.

Several factors seem critical to the analysis of pupil performance in this study. First, it is important to recall that the planning techniques represent a complex intervention package, including such diverse components as counting correct incorrect responses, graphing data and aujusting social contingencies. Thus, it is the intervention package that must be viewed as showing functional effects on pupil performance, rather than particular components. Currently, research is under way to evaluate one of the package components, graphing of performance data, in relation to pupil performance. Second, there appears to be no consistent relationship between pupils' initial baseline performance and the magnitude of change that can be attributed to the planning techniques. The planning strategies appear to have relatively equal effects on children who initially produce far more incorrect than correct responses (Figure 2, Larry; Figure 4, Dan; Figure 5, Sam) and those youngsters whose total behavioral output is severely limited (Figure 1, Alfred; Figure 3, James' Math). Finally, it is important to note that pupils' performance varied quite dramatically from session to session throughout the study. One factor contributing to this variability is the use of a rate measure of performance that is much more sensitive than percentage or frequency measures to such variables as difficulty of tasks, amount of teacher involvement, and inappropriate behavior by pupils during sessions. It also seems reasonable to interpret the observed variability in performance as direct evidence of the behavioral inconsistency that many have offered as a defining characteristic of behaviorally disordered children (Bower & Lambert, 1961; Haring & Phillips, 1962; Morse, 1958).

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THE VALIDATION OF COMPETENCIES IN SPECIAL EDUCATION: A COMPETENCY-BASED TEACHER TRAINING PROGRAM

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Just what is it that teachers do to cause pupils to learn? This issue has long been a major concern in the field of education. The teaching act requires many skills, abilities and characteristics that are difficult to identify and define (Gagne, 1963; Peter, 1975: Stern, 1963). Many studies of teacher-pupil interaction have identified numerous skills demonstrated by the teacher that seem to cause desirable changes in pupils—that is, learning (Peter, 1975). However, precise measurement of teacher skills has been virtually nonexistent (Houston & Howsam, 1972).

In recent years the movement toward accountability in teaching has given impetus to an emphasis on competency performance. As Houston (1974) points out, the movement toward performance-based teacher education has as its foundation the idea that teachers should be trained to do those things that cause or facilitate educational growth in their pupils.

Currently in the field of education, greater and greater stress is being placed upon the quality of teacher training programs. The demand that some attempt be made to determine the effectiveness of teacher training programs has become increasingly insistent (Suchman, 1967). State departments of education, governmental agencies, professionals and lay groups are demanding that educators provide evidence as to the worth and effectiveness of their teacher training programs.

Many states—New York, Texas, Pennsylvania and Florida—have begun to explore the possibility of certification of teachers based on performance as well as on level of education and knowledge. The United States Office of Education (U.S.O.E.) has encouraged the performance-based movement. Through its funding, the USOE continues to support teacher training programs that require performance-based approach. The American Association of Colleges for Teacher Education (AACTE) has given impetus to the movement by developing standards that require a faculty to define the professional roles of the teachers and design preparatory programs based on these roles. In concert with USOE and the AACTE, the Committee on National Program Priorities in Teacher Education has recommended

the testing of the power of competency-based teacher education as a means of improving the performance of educational personnel in the nation's schools (Rosner, 1972).

The question has arisen as to whether teacher educators have provided experiences that lead to the acquisition of competencies relevant to effective functioning in the classroom. Rosner (1972) has pointed out that one of the most complex problems confronting teacher education has been the identification of criteria by which to assess the effectiveness of teacher trainee programs. He suggests three basic methods of identifying specific skills and competencies: (1) the examination of research and theory of the behavioral and social sciences, (2) the examination of content and skill emphasis of specific school curricula, and (3) the conducting of inquiries of master teachers and teacher trainers.

Following Rosner's suggestions, the Department of Special Education at the University of North Florida examined appropriate research literature. In addition, the Department surveyed both teacher training curricula from other universities and curricula from public school programs. A survey was also conducted in which master teachers and teacher trainers identified those skills and competencies deemed necessary to effect academic gain in pupils.*

Utilizing information from the above sources, 13 generic competencies that appear to be germane to the training of all educators were identified and efforts have been made to validate these competencies. These competencies are as follows:

1. *Objectives.* Lesson plans are stated in observable and measurable terms. The teacher states his/her long range objective and enroute (daily) objectives in terms that are observable and measurable. The objective describes what the learner will perform and the criteria of success.

2. *Rapport.* The teacher has established rapport with the pupil. This is evidenced by E and one or more of the following:
   A. The pupil initiates conversation with the teacher.
   B. The pupil asks the teacher questions.
   C. The pupil smiles at the teacher.
   D. The pupil offers help to the teacher.
   E. The objective has been communicated to the learner.
   This is evidenced by the pupil's verbal statements as to what he/she and the teacher are trying to accomplish.

3. *Motivation.* The teacher has identified the pupil's interests and used the student's interests in his/her lessons. This is evidenced by (a) completion of an interest inventory and (b) the instructional materials and/or the teacher's verbal statements reflecting the student's interests.

4. *Entering Behavior.* The teacher has determined the pupil's entering behavior as evidenced by criterion referenced testing.

5. *Modality Assessment.* The teacher has identified the pupil's strongest

* Information available from the Special Education Department at the University of North Florida, Jacksonville.

modality or modalities of learning. This is evidenced by diagnostic testing.

6. *Elicitors Identified.* The methods and materials employed in the lesson bring forth desirable pupil responses. This is evidenced by:
   A. Pupil attention to task and/or teacher.
   B. Completion or near completion of task.
   C. Emission of desirable behaviors on the part of the pupil.
   (Evaluated by supervisor or professor.)

7. *Lessons are Developmental.* The teacher's lessons for the pupil contain enroute objectives that are hierarchically arranged and directly related to the terminal objective. This is noted by examining the daily Diagnostic Prescriptive Teaching forms of the teacher and by looking specifically at the enroute objectives. Instruction should:
   A. Be hierarchically arranged.
   B. Proceed from the concrete to the abstract.
   C. Proceed from simple to complex skills.

8. *Reinforces Achievement.* The teacher uses reinforcement techniques to increase the academic achievement of the pupil. This is evidenced by:
   A. Observation and audition of the teacher's verbal statements in response to learner behavior by supervisor or professor, and/or
   B. Written records of symbolic reinforcers for gains in pupil achievement.

9. *Reinforces Desirable Behavior/Does Not Reinforce Undesirable Behavior.* The teacher applies reinforcement techniques to pupil behavior. This is evidenced by:
   A. Observation and *audition* of the teacher's behavior in response to pupil behavior, and/or
   B. Written records that evidence baseline data and reinforcement interventions
   C. The pupil's behavior, as recorded by the teacher, must show desirable progressive developmental changes in the pupil's deficit behavior or a decrease in the interfering behavior.

10. *Reinforcement Schedules and Reinforcement Levels.*
    A. The teacher's reinforcement schedule evidences change in the ratio or interval or reinforcement. This is noted under the category of contingency on the Diagnostic-Prescriptive Teaching Forms, or
    B. The teacher reinforcement level has changed. This is noted under Reinforcement Level on the Diagnostic-Prescriptive Teaching Forms.

11. *Evaluation*. The teacher will evaluate instruction in terms of behavior change. This is evidenced by the following:
    A. Written notation of the Diagnostic-Prescriptive Forms under the category of Objective Accomplished and Explanation.
    B. The success rate of the pupil (the pupil's work is attached to the Diagnostic-Prescriptive Form). Toward the completion of the lesson the pupil should have achieved correctly 9 out of 10 responses or have answered correctly 90 percent of the time.

12. *Teaches for Transfer and Generalization.* The pupil evidences the behavior he/she has learned in an instructional setting in other set-

tings. This is noted by observation and audition of the teacher, supervisor, professor or other persons, and is recorded under the category Generalization of Learning on the Diagnostic-Prescriptive Teaching Forms.

13. *Knowledge of Theoretical and Scientific Studies.* The teacher can translate scientific studies and theoretical formulation into effective educational implementation:
    A. The teacher, at all times, must be able to give a rationale for what he/she is doing. This rationale should be verifiable by the literature in the field.
    B. The teacher answers correctly 80 percent of the questions on an objective exam.

It is recognized that the validation of competencies is a complex process. Several validation processes are currently being used by the University of North Florida's Special Education Program. The purpose of this study is to address itself to the procedures that deal with the validation of competencies related to pupil achievement.

STATEMENT OF THE PROBLEM

In this study it has been assumed that one way to measure teacher effectiveness is through academic achievement gains of pupils. Therefore, the following questions were addressed.

1. Can teachers trained in a competency-based teacher education program using the 13 generic competencies effect academic achievement gains in exceptional pupils?

2. If the above is true, how would the rate of gain compare to that expected of normal pupils?

HYPOTHESES

In order to address the above problem it was hypothesized that teachers trained in a competency-based teacher education program utilizing the aforementioned generic competencies would effect significant achievement gains in a sample of exceptional pupils as evidenced by a comparison of pre- and post-test achievement scores measured by the math and reading sections of the Wide Range Achievement Test. The predetermined significance level was .05.

It was further hypothesized that teachers trained in a competency-based teacher education program utilizing the aforementioned generic competencies would effect significant achievement gains in a sample of exceptional pupils beyond those gains that would be expected in a normal population. This was evidenced by a comparison of actual achievement scores and extrapolated expected achievement scores measured by the math and reading sections of the Wide Range Achievement Test. The expected achievement scores were extrapolated from data based on a normal population. The predetermined level of significance was .05.

METHOD

Subjects

The subjects involved in this study were those 30 graduate students enrolled in the final practicum phase in the Special Education Master's Program at the University of North Florida. At the time of this study these graduate students had completed their graduate program witn the exception of this final practicum phase. These graduate students were teaching in their own classrooms in one of the public school systems within Duval, St. Johns, Clay, Baker or Nassau counties in northeast Florida. All of these classrooms were either self-contained or resource classrooms for pupils identified as mental retarded, learning disabled or emotionally disturbed.

Procedures

Each of the 30 graduate students was assigned to a pupil within his/her own classroom. The graduate students were then required to pretest each of these pupils using the reading and arithmetic portions of the Wide Range Achievement Test (WRAT) and diagnostic assessment techniques as prescribed in competencies numbers four and five.

The graduate students then designed instructional units in arithmetic and reading for each of the pretested pupils based on the results of the diagnostic information. These instructional units were to be designed in accordance with the Department of Special Education's Diagnostic–Prescriptive teaching form that reflects (see Figure 1) all of the 13 generic competencies.

Based on these instructional units the graduate student then conducted 30 teaching sessions of approximately 45-minute duration with the pretested pupils over a period of an academic quarter. These 30 sessions, using the above mentioned instructional units, were evaluated by a university practicum supervisor to determine by means of a criterion checklist* if, in fact, all of the 13 generic competencies were being employed on a consistent basis.

Upon completion of these 13 instructional sessions the graduate students then post-tested the pupils, again employing the Wide Range Achievement Test. In addition, expected achievement gains were computed for each pupil using the norms given in the Wide Range Achievement Test Manual.

ANALYSIS OF DATA

As mentioned in the preceding section, pre- and post-test achievement data were obtained from the arithmetic and reading sections of the WRAT for each of the pupils involved in the study. In addition to the pre- and post-test scores, expected achievement test scores for each pupil were extrapolated using the Wide Range Achievement Test Manual.

* This checklist is available from the Department of Special Education of the University of North Florida.

UNIVERSITY OF NORTH FLORIDA
DEPARTMENT OF SPECIAL EDUCATION *DIAGNOSTIC PRESCRIPTIVE FORM*

Pupil_____ Lesson #_____ Teacher_____

Ia. Terminal Objective _____

_____

Ib. Enroute Objective _____

_____

_____

II. Rapport Established _____Yes _____No

A. Long range objective communicated to learner. _____Yes _____No

B. Enroute objective communicated to learner. _____Yes _____No

III. Pupils' Interests _____

IV. Entering Behavior _____

_____

Va. Modality: Strongest_____ Weakest_____ How established_____

b. Modality Emphasized: ___Visual ___Auditory ___Haptic ___Combination

VIa. Elicitor Level: Describe _____

b. _____Abstract _____Semi-Abstract _____Concrete

c. Method of Relating: _____

_____

_____

d. Activity: _____

_____

VII, VIII, IX, X. Reinforcer:

	Describe	Contingency	Rating Good Fair Poor
Abstract			
Social			
Symbolic			
Primary			

XI. Objective Accomplished: _____Yes _____No

Number of Responses Correct: ____ out of ____ or percentage of time ____

Explanation: _____

XII. Generalization of Learning-Describe: _____

_____ _____

Figure 1

The pre- and post-test scores were then compared by a t-test of means using the computer facilities at the University of North Florida. This was done to determine if there were significant achievement gains in the achievement levels of these pupils.

Following this comparison, a t-test for correlated data (Downie & Heath, 1970) was used to compare the actual post-test scores and the extrapolated

expected achievement scores. This was done to determine if the achievement gains made by these exceptional pupils were significantly better than those that could be expected within a normal population.

RESULTS

The pretest administered to the 30 exceptional pupils yielded raw mean scores of 25.4 and 43.2 for the math and reading sections of the WRAT respectively (see Tables 1 and 2). The standard deviations of the pre-test were 5.31 for the math section and 9.98 for the reading section (see Tables 1 and 2).

The post-test administration of the Wide Range Achievement Test yielded a raw mean score of 27.27 for the math section and 48.07 for the reading section. The respective standard deviations were 5.56 and 9.75 (see Tables 1 and 2).

When the mean scores for the math pre- and post-tests were compared using a t-test, a significant difference was found with post-test scores being significantly higher than the pre-test scores ($t = 3.71$, $df = 29$, $p < .05$). When the pre-test and post-test scores for reading were compared using a t-test, significant differences were again found with the post-test scores being significantly higher than the pre-test scores ($t = 7.89$, $df = 29$, $p < .05$).

The extrapolated expected raw scores for the math and reading sections of the Wide Range Achievement test yielded raw mean scores of 26.07 and 46.58 respectively. The standard deviations for the extrapolated raw scores were 5.26 for the math section and 9.30 for the reading section (see Tables 1 and 2).

When the actual post test scores for the math section were compared against expected achievement scores extrapolated from the test manual using a correlated t-test, significant differences were found ($t = 2.85$, df

TABLE 1

Mean Raw Scores on Math Section of the Wide Range Achievement Test

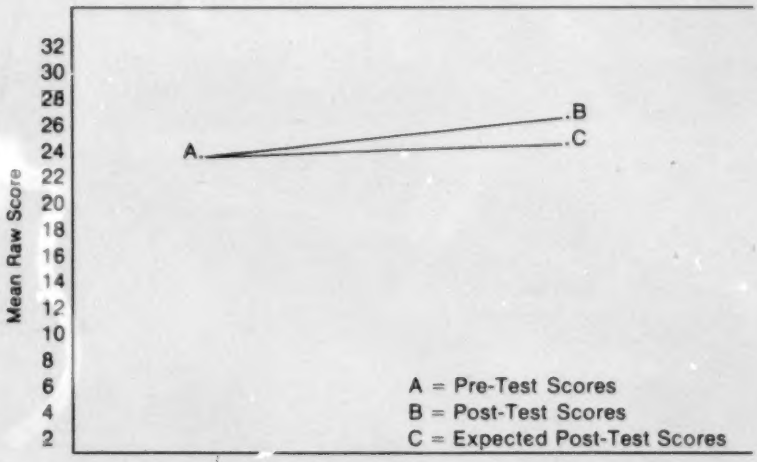
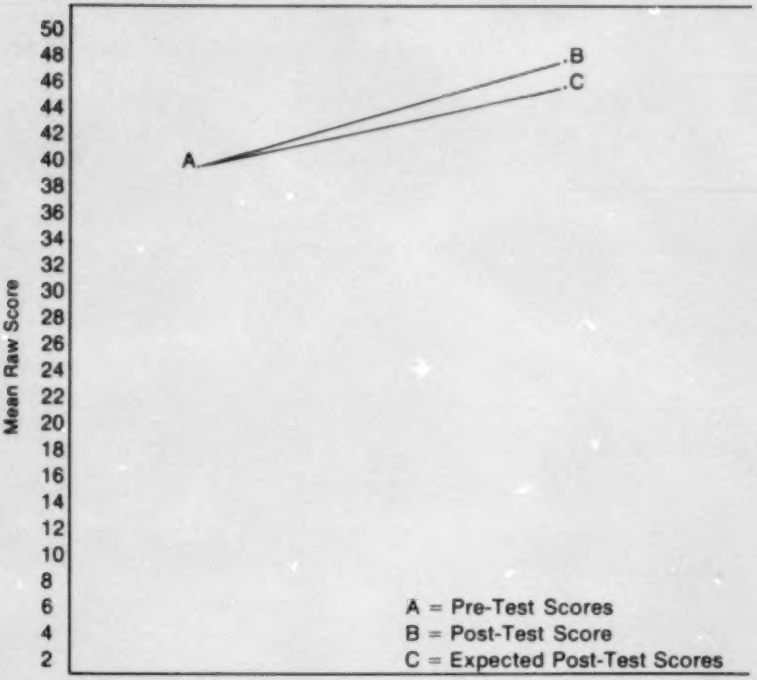


TABLE 2

Mean Raw Scores on the Reading Section of the Wide Range Achievement Test



= 29, $p < .05$). The actual achievement gain scores were found to be significantly higher than the expected achievement scores as based on a normal population.

When a comparison using a correlated t-test was made of the actual post-test raw scores and the extrapolated achievement raw scores for the reading section of the test, significant differences were found ($t = 2.65$, $df = 29$, $P < .05$), again, the actual achievement scores.

These results lead to retaining both of the hypotheses. In other words, teachers who employed the 13 generic competencies developed by the Department of Special Education at the University of North Florida did in fact bring about significant achievement gains in exceptional pupils and that those achievement gains were in fact greater than those which could be expected within a normal population.

DISCUSSION

In this study two concerns were addressed:

1. Whether teachers trained in the use of the 13 generic competencies could bring about significant achievement gains in exceptional pupils, and

2. Whether the achievement gains realized by these pupils would be significantly greater than those that might be expected within a normal population.

The results of this study demonstrate that teachers who were trained with those 13 generic competencies and consistently utilized these competencies did in fact bring about significant achievement gains in exceptional students. This lends support not only to the effectiveness of the teacher training program but also to the utilization of the competencies thus identified.

In addition to the obvious need for replication, additional studies are needed to validate the specific competencies used within the described program. One method that has been considered for this validation is a comparison of teachers trained in the use of these competencies and teachers trained under programs with a different emphasis. Other studies suggested by these results include studies of single subject designs employing baseline data.

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EVALUATION OF BEHAVIOR DISORDERS

Ken Howell

A basic component of evaluation is comparison. Every evaluative statement must have a standard that places the characteristics of interest into some type of perspective. In academic areas the standards are either normative or criterion in nature, depending on the purpose of the evaluation. Normative standards are applicable to situations in which the evaluator is attempting to classify the student. Criterion standards are of value when the evaluator is attempting to examine the skills or knowledge the student possesses.

When an evaluator wishes to make an academic evaluation for the purpose of guiding instruction, he/she will compare the student with the academic curriculum. By using criterion-referenced measures directly based on the curriculum, the evaluator can determine skills the student already possesses and those the student needs to be taught. This is possible because a predetermined and often well specified academic curriculum exists. In the area of behavior this is not the case. There is no predetermined, well specified behavioral curriculum to which a student can be compared. Consequently, there is a tendency for those who work with behavior disordered (B.D.) children to select for treatment those behaviors that are immediately irritating.

THERAPY V. CONTROL

Therapy, like many terms in education and psychology, is medical in its origin, meaning to treat and cure. Control means to regulate, exercise power over and/or to restrain. Although the two terms are not synonomous, educators often exercise control in the name of behavioral therapy. There are a variety of reasons for this, not the least of which is the physical protection of the client. However, given the situational nature of many behaviors, it is important to remember that control in one setting may not generalize to another.

Many programs for B.D. children are based more on control than on therapy. This is particularly true in the public schools where the largest number of these students are served. In part, this is because students are sent into such programs when their behavior is judged to be inappropriate to the regular classroom. It is also partly because public schools are not a comfortable setting in which to use terms like therapy. The student there is not taught a specific behavioral curriculum, but rather controlled in a self-contained classroom and then controlled in other settings such as the home or the regular classroom. In order to get long-term value from this type of programming, the student must analyze each setting in which he/she has been controlled, discover general components, and synthesize

these components into a set of universal behavioral skills. This process is roughly analogous to learning to read according to the sight approach. Just as in reading, such analytical methods may be appropriate to students during initial instruction but be inappropriate for remedial students. The remedial student (in this case the behavior disordered student) is considered to be remedial because of a past inability to make these generalizations. Therefore, it is necessary to teach the general skills directly, which means a curriculum must be developed.

Figure 1 illustrates a simplified model of a behavioral curriculum. The model suggested by May (1977) subdivides behaviors into those that the student can do and those that the student cannot do. Using the model, the first question an evaluator should attempt to answer is: Does the student fail to behave appropriately because he/she cannot do the behavior or because he/she will not do the behavior? To arrive at an answer, the first step is to test the students on the behaviors in question. This is a fairly straight forward skill-testing activity that will be discussed shortly. If the evaluative conclusion is that the student lacks skills, the educational implication is that they should be taught them.

If the students have the skills, the question is why don't they use them appropriately? For convenience, it seems a good idea to ask if the inappropriate aspect of the behavior is a function of its frequency, duration, intensity or the situation in which it is exhibited. The idea that the same behavior can be appropriate in one setting but inappropriate in another leads logically into a consideration of the environment in which the student is functioning. The environmental consideration has been termed eco-behavioral assessment and has been discussed by Prieto and Rutherford (1977). A basic premise of the eco-behavioral model is that behaviors can only be viewed in context. In other words, if the student's situation is preventing the exhibition of appropriate behavior, then attention and treatment may be directed to the situation and not just the student.

Who evaluates the student and where the evaluation takes place will directly influence the data collected and the conclusions drawn. In the eco-behavioral model, the assumption is that B.D. occurs within the interaction of the student and his or her environment. Therefore, an effective evaluation strategy will incorporate information from as many settings and

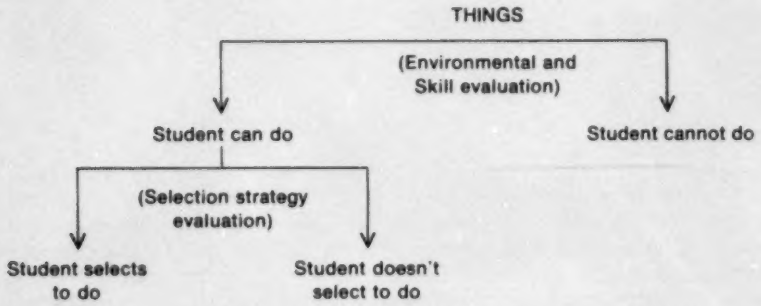

Figure 1. A simplified model of behavioral curriculum.

individuals as possible. This idea includes the use of teachers, parents, peers and the students themselves as data sources. It also includes the careful analysis of various settings in which the student functions.

There are two advantages to an interactive model. The first is that it results in a more thorough picture of the student than do techniques such as psychological testing. The second is that it promotes generalization. Individual and situation specific data are put into the evaluative system and interventions are selected on the basis of this information. Consequently, the potential for selecting treatments that will generalize across settings and people is enhanced. Follow-up data is also collected in various settings (other than the treatment setting) to judge the effectiveness of interventions.

If a situational explanation has been ruled out, then the next probable explanation is that the student doesn't behave appropriately because he/she decides otherwise. That is to say, students are not selecting appropriate behaviors from among those they can do. The evaluator, is therefore, in a position of examining the student's selection strategies, some of which such as values and/or beliefs, are covert. This raises some interesting measurement problems.

WHAT TO EVALUATE

Behavior disorders can be viewed from several perspectives. Strupp and Hadley (1977) presented a tripartite model for evaluating an individual's mental health. This model used three perspectives: that of societies, individuals and mental health professionals. The model suggests that a student is judged as B.D. whenever: 1) he/she fails to conform to the expectations of society, meaning that he/she has an adaptive behavior deficit, 2) he/she reports uncomfortable feelings and perceptions of self or 3) he/she fails to behave according to the theoretical view of personality held by a mental health professional.

These three perspectives are neither discrete nor mutually exclusive. Therefore, it is possible for various combinations and overlaps to occur among them, for example, a student placed into a B.D. program who may exhibit poor adaptive behavior and seem disturbed to various mental health experts, but feels good about himself/herself. Such a student would be evaluated and treated very differently than those who have adjusted fully to society and seems perfectly normal to professionals, but report that they feel awful. Different evaluative techniques may be needed to evaluate in each perspective.

THE PROFESSIONAL'S PERSPECTIVE

One domain in which a student may be considered B.D. is that of professional judgment. In this case the professional must first devise or ascribe to a theory of personality, development or social functioning. The variety of such theories is seemingly endless. The ability to intervene or evaluate from these varied perspectives hinges directly upon the teachers' working knowledge of them. Supplying this kind of working knowledge is well beyond the scope of this paper so it will be avoided here except for a brief note of cau-

tion. Evaluators who try to test psychological constructs frequently find students who don't behave as theory would predict. When this happens, some evaluators conclude this discrepancy indicates a severe handicap. Two alternative explanations are that the theory is wrong or that the testing instrument is invalid.

The use of published psychological tests, particularly normed ones, is more appropriate to classification than treatment. For this reason and also because of their theoretical bias, their use is associated with psychologist-biased, one-shot diagnosis. That is the procedure of removing students from their usual setting to the office of a stranger in order to administer a battery of tests that contain many items unrelated to the individual but related instead to a theory of how most students develop and/or function.*

THE PERSPECTIVE OF SOCIETY

It is possible to carefully select behavioral headings that represent important aspects of the student's interaction with society. By comparing the student to each of these headings, the evaluator gets an idea about how society may think the student has adapted to it. There are two popular ways of making this comparison: 1) by using an adaptive behavior rating score and b) by using some variation of applied behavioral analysis.

ADAPTIVE BEHAVIOR

Adaptive behavior scales are useful in determining skills a student does or does not have. Figure 2 shows an excerpt from such a scale.[1] This scale is divided into various headings that are representative of social considerations. If the evaluators determine that one of the headings represents a main area of concern, then they attend to the more specific descriptors under the heading. The descriptors on this particular scale were selected according to two criteria: 1) the likelihood of the problem occurring and 2) the ability of the facility to treat the problem. In this case, the facility is a short stay hospital setting so the author attempted to select adaptive behavior problems that may be treated successfully within five weeks.

Once a main problem area has been identified, the next step is usually to select a series of target behaviors. These targets should represent examples of a *response* class (Whaley & Malott, 1971) meaning that an intervention on one is likely to influence the others and subsequently the main problem area as seen in Figure 3.

Target behavior should be observed directly and frequently before intervention and during intervention phases. The assumption is that changes in these behaviors will cause change to the main problem area and that these changes will be maintained. Followup data in an outside setting is an essential component of this system.

* Nothing in this discussion should be interpreted as supportive of this type of evaluation for the purpose of directing treatment.

[1] The sample scale shown here was developed at St. Luke's Hospital, Phoenix, Arizona, by K. Nelson and others. It is composed of their materials as well as sections from Burk's Behavior Rating Scale, the Devereux Adolescent Rating Scale, the Comprehensive Occupational Therapy Evaluation Scale, the Comprehensive Evaluation in Recreation Therapy, and materials from G. J. Blackham's Behavior Rating Scale.

STUDENT: _____ EVALUATOR _____

DATE: _____

2.3 *Accepting Authority/Social Conformity/Interaction with Adults*

__ 2.3.1 Is able to accept authority or rules without undue defiance, but is also confident in expressing own opinions assertively; relates with adults.
__ 2.3.2 Resists or refuses authority or rules.
__ 2.3.3 Is covertly uncooperative, stubborn, resistant.
__ 2.3.4 Never questions authority.
__ 2.3.5 Never expresses opinions assertively.
__ 2.3.6 Openly defiant, resentful, negative.
__ 2.3.7 Unwilling to compromise.
__ 2.3.8 Rebellious if disciplined.
__ 2.3.9 Is sassy or disrespectful.
__ 2.3.10 Avoids adults.

2.4 *Independence/Initiative*

__ 2.4.1 Able to function independently, on own initiative, in all situations.
__ 2.4.2 Needs help getting started.
__ 2.4.3 Relies on self in some situations, needs support or guidance in others.
__ 2.4.4 Needs constant attention, approval.
__ 2.4.5 Overly obedient.
__ 2.4.6 Does not trust own judgment.
__ 2.4.7 Indecisive
__ 2.4.8 Clings to adults.
__ 2.4.9 Refuses any help, insists on doing everything on own.

2.5 *Attitude Toward Groups*

__ 2.5.1 Accepts group structure and decisions while being assertive and competing appropriately; able to deal with conflicts.
__ 2.5.2 Rejects group structure.
__ 2.5.3 Rejects group decisions.
__ 2.5.4 Does not try in situations involving competition.
__ 2.5.5 Tries, but gives up.
__ 2.5.6 Must always win.
__ 2.5.7 Becomes overly involved in conflicts.
__ 2.5.8 Ignores or avoids conflicts.
__ 2.5.9 Becomes aggressive in conflict situations.
__ 2.5.10 Withdraws from conflict, but remains in activity.
__ 2.5.11 Personalizes conflict; unable to remain objective.
__ 2.5.12 Tends to provoke group into negative response toward self.

Figure 2. [From] An adaptive behavior scale (K. Nelson, 1977).

The adaptive behavior scale shown in Figure 2 is filled out prior to the student's admittance into the hospital program by doctors, parents, teachers, the student and other interested parties. These scales are then recorded by an intake person on a summary form to see if the different perspectives overlap. Areas of particular concern are identified and targets are then selected. Because the goal is to remove the student from the hospital setting, the hospital staff have minimal input into this initial assessment. The staff is used later to monitor the student's progress but treatment targets are not selected on the basis of their experience with the student on the ward. To do so would be to run the risk of overshadowing therapy with control by making the treatment setting more important than the outside world.

MAIN PROBLEM: RELATES TO ADULTS
INDICATORS: 1. RESISTS RULES
2. DISRESPECTFUL
3. AVOIDS ADULTS

RESPONSE CLASS:

DECELERATE	*ACCELERATE*
1. LEAVES GAMES	1. REPEATS RULES
2. BITING TEACHER	2. POSITIVE STATEMENTS TO ADULTS
3. RUNS AWAY	3. INITIATES CONTACT WITH ADULTS

Figure 3. Selecting behavioral pinpoints.

APPLIED BEHAVIORAL ANALYSIS

A second procedure for judging the interaction of the student with society is applied behavioral analysis. The term "applied behavior analysis" is used here to apply to any of several techniques that have their basis in the systematic analysis of the student's behavioral interactions. The previously discussed eco-behavioral technique is fairly typical of these techniques as is the learner-treatment interaction technique (Howell, Kaplan & O'Connell, 1978) and even the cognitive-functional approach (Meichenbaum, 1977) to be discussed later.

The basic idea is that the probability of a behavior occurring is related to its antecedents and consequences. By analyzing the setting in which the behavior occurs, the evaluator may be able to recognize these antecedents and consequences. This type of evaluation should lead to modifications in the antecedents or consequences in order to increase or decrease the probability of the target behavior reoccurring. In the analysis procedure, the evaluator specifies components of the setting, characteristics of the client and behavioral responses.

This is a direct observation procedure. Figure 4 shows an example of this technique applied to the target "hits peers." The idea is that by specifying the events that took place immediately before and immediately after the behavior, the evaluator can recognize ways to modify it. In the Figure 4 example, it looks as though having the "negative commments" stop may be more rewarding than the "time out" is punishing. This indicates that the teacher may wish to impose a different consequence. Figure 4 might also be interpreted to mean that the hitting behavior would decrease if the student is kept out of less structured settings.

ANTECEDENTS	*RESPONSE*	*CONSEQUENCES*
1. CLASSROOM	STUDENT	1. PEER RUNS AWAY
2. FREETIME	HITS PEER	2. NEGATIVE COMMENTS STOP
3. EARLY IN THE DAY		3. TEACHER PLACES STUDENT
4. LOW SUPERVISION		IN TIME OUT
5. NEGATIVE COMMENTS		

Figure 4. Behavior analysis.

THE STUDENT'S PERSPECTIVE

Usually students who say they are unhappy, anxious or scared will have adaptive behavior problems. However, there is not always a direct relationship between the two domains. Because there is a tendency for most behavioral therapists to go with what they can see, the adaptive behavior problem may overshadow the reported feelings.

Students who have no adaptive behavior problems at all are often self referrals. In these cases, the evaluator is in the position of examining the students' reports about how they feel or think. These thoughts and feelings are the students' covert characteristics. Such characteristics comprise the selection strategies used by the child to make choices among the body of things which he/she can do. This means that what a student thinks (believes) and feels also determines if the student may be considered behavior disordered.

The idea that thoughts, feelings and even cognitive strategies can be evaluated (and treated) within a behavioral paradigm is fairly new. It seems antithetical to the standard of observable behavior, and yet, this is the basic idea underpinning the discipline of cognitive behavior modification (Meichenbaum 1977; Mahoney 1974).

It is possible to distill this cognitive behavioral technology into a behavioral curriculum. Developing a curriculum to teach students to control their own thoughts, feelings and/or environment makes sense in terms of generalization. A major weakness of behavioral programs has been their failure to generalize across settings. If students can be trained in self-control techniques, logically the potential for generalization will be increased, although the empirical evidence to this effect is not conclusive (McLaughlin, 1976). It has also been suggested that turning over interventions to the client may be more efficient because it expands the amount of time the students work on their problems. They may be given an assignment to work on throughout the day, record its effects and report back to the therapist (Shelton, 1977). The record of these "inner" behaviors (Bateman, 1971) can only be obtained by the students themselves. The basic validity issue is that if the student reports a feeling, the evaluator must assume the report is true.

There has been a great deal of research indicating that students can effectively count and consequate their own behaviors (McLaughlin, 1976).

Other studies have shown the feasibility of teaching self control through the use of coping skills, assertiveness training and problem solving (Meichenbaum, 1977). These techniques come into play when students attempt to make appropriate selections among the things they can do.

These self-control techniques have common components that could be incorporated into a behavioral curriculum with which the student can be compared for evaluative purposes, including:

1) Self-monitoring and recording skills
2) Recognition of target thoughts, feelings or behaviors
3) Recognition of personally effective contingencies
4) Understanding of basic behavior and/or cognitive change strategies
5) Relaxation skills

A prerequisite for some of these techniques is verbal skill, meaning that a language evaluation may be indicated prior to placing a student into a self-control program. In fact, as a brief aside, language screening centered on oral communication (Lee, 1974) is the one testing procedure to be recommended for all students considered to be B.D. Many of the situational cues that allow people to decide the appropriate way to behave in a given setting are linguistic. In addition, students who are poor at code switching (Serapiglia, 1977)—what we do when we speak to a convention audience differently than we speak in a bar—may engage in speech that others would view as inappropriate.

Let's briefly consider the student who gets into legal trouble through associations with delinquent peers. Such a student may need to learn this set of curricular subskills:

1. How to recognize potentially illegal situations.
2. How to express unwillingness to participate in them.
3. How to leave the peer group without conflict.
4. How to find somewhere to go upon leaving.
5. How to return to the group when the problem has passed.

Suppose the student could identify situations that were apt to become illegal (Subtask 1), but that the student was willing to participate in illegal acts. This willingness would be the result of some belief or value system that is at odds with existing legal structure. For example, the belief that "it's ok to steal from big business because it has insurance and it rips off the little guy." In therapy the teacher or mental health professional who chooses to tamper with this belief system would probably do so by

1) Running a reality check to see if the belief is sound, like "big business is owned by stock holders like you and I", or

2) Offering counter statements (Shelton, 1977) that show the eventual effect of such a belief, i.e. "because others think and act the way you do, we all must pay higher prices at the store."

In order to produce these statements, the therapist must be able to:

1) Assess reality (probably by asking others for their opinion)

2) Identify the components of students' beliefs that are at odds with reality and

3) Generate realistic statements that counter the belief. If further interviews indicated that the student was unskilled at checking reality, the implication would be to train him or her in this area.

APPLIED COGNITIVE-BEHAVIORAL ANALYSIS

During the previous discussion of applied behavioral analysis, I talked about attempts to specify the antecedents and consequences of behavior. Unfortunately, such a system does not account for two different students in the same situation behaving differently. These differences are the result of the different selection systems that the students use to choose from their available behaviors. According to Miechenbaum (1977), it is possible to get

ANTECEDENTS	*RESPONSE*	*CONSEQUENCES*
1. CLASSROOM	*Thought*: "If I let them talk to me this way I'm not a real man."	1. PEER RUNS AWAY
2. FREE TIME		2. NEGATIVE COMMENTS STOP
3. EARLY IN THE DAY	*Behavior*: Student hits peer	3. TEACHER PLACES STUDENT IN TIME OUT
4. LOW SUPERVISION		
5. NEGATIVE COMMENTS		

Figure 5. Cognitive-behavior analysis.

insight into the relationship of cognition to action through what he terms cognitive-functional analysis, a variation of behavioral analysis.

You may recall the analysis done on hitting behavior in Figure 4. Figure 5 shows a similar analysis with the inclusion of a thought component. In the behavioral paradigm, the antecendents evoke the thought, that promotes the hit, that then leads to the consequences. If the consequences are more rewarding than punishing, the thought may be strengthened and the probability of the behavior increased. The traditional behavior therapist would probably approach the problem by altering the antecedents or consequences of the hit. The cognitive behavior therapist would attempt to alter or stop the thought by teaching self-management skills.

The main problem with both behavioral and cognitive analysis techniques is the complexity of behaviors and thoughts. The simple S-R-S model is not sufficient to explain thoughts and actions that occur during human interactions. On a theoretical level, it can even be argued that applying logical analysis to the less than logical aspects of human behavior (particularly disordered behavior) is futile. The analysis of cognition is even more difficult, given that any number of stimuli (both internal and external) can give rise to the same thoughts and feelings.

The advantage of the analytical procedures is that they tie in very well with the logic of planned interventions. In other words, whereas behavior disorders may not be logical, what we do about them should be. If the only purpose of evaluation was to specify cause, then logical systems would not be sufficient. However, knowledge of cause is less important than selection of treatment in a behavioral model. Therefore, the various analytical systems are valuable because they are functional.

SUMMARY

The principal difference between academic and behavioral evaluation is the absence of specified outcomes (a curriculum) in the behavioral area. In the absence of a behavioral curriculum, teachers frequently end up merely controlling the student. The risk of engaging in control rather than therapy can be diminished through careful evaluation. Techniques for evaluating adaptive behavior and cognitive selection strategies have been briefly outlined.

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